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THE MEANING OF CONFLICT.

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I.

THE task of defining a concept cannot be circumvented by inquiring into the etymological origin and the first uses of a word, but the history of a word may shed some light on the sequence of motives and problems that has led to the situation from which a new investigation takes its start.[1] Conflict is a Middle-English coinage[2] of tolerably well defined meaning in common usage. Its derivation from the Latin *confligere,* to strike together, to clash, suggests that it first designated an actual encounter with arms. It denotes a fight, a struggle, especially one that is prolonged and intense. From the human sphere and the facts of war it has at an early date been transferred to natural processes ("a horrible thundering of fire and water conflicting together" writes Bacon; "the conflicts of the ice-masses in their rotation", Kane); but there is a tendency to shift the centre of gravity of the terms to psychic states harbouring opposed ideas, feelings, strivings; and finally to collisions of tendencies and claims that are, or appear to be, incompatible. Often the objects referred to in such mental processes ("noëmatic contents" in the language of phenomenology) are said to be in conflict although no independent spatio-temporal reality and activity can be attributed to them; thus even Buckle, an author not prone to indulge in "Platonism", writes: "One error conflicts with another, each destroys its opponent and truth is evolved" (1861). The most common case discussed was the phenomenon of a "conflict of duties", which T. H. Green has made a topic popular in discussions of ethics. Such collisions of ideal contents have their correlates in subjective modes of apprehending; thus G. F. Stout defines: "Whenever there is any kind of felt inconsistency, there is a psychical conflict". It would probably be preferable to reserve the term for such psychic (or, in phenomenological language, noëtic) phenomena; for the clashing of ideal elements the term "contradiction" or simply "incompatibility" would appear to suffice.

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[1] The author of this paper, which forms part of an inquiry into the nature of human conflicts undertaken for a recent *Melbourne Foundation for Research on Conflict* during the years 1943-45, feels much obliged to Dr. McElwain, of the University of Melbourne, for initial references to psychological literature and to Professor O'Neil, of the University of Sydney, who read a draft of the manuscript and made most valuable comments. Other results of my inquiry will be found in my book *The Idea of Conflict* (Melbourne University Press) and in my paper *The Resolution of Conflict* (*Social Research,* June, 1949).

[2] *The Shorter Oxford English Dictionary on Historical Principles,* 1936, s.v. Webster's *New International Dictionary of the English Language,* 2nd edition, 1939, s.v.

It is significant that during the nineteenth century the intellectualist connotations tend to prevail; more recent writers seem to feel that the phenomenon ought to be seen in its dynamical aspects. Thus Fowler in his *Pocket Oxford Dictionary of Current English* (1932) defines conflict as "trial of strength between opposed parties or principles; conflicting state". The second definition is periphrastic, the first is both too broad and too narrow. It would include, contrary to common usage, a football match, for example, but exclude such subtler forms of antagonism as those of Thorold and Mertoun in Browning's *A Blot in the Scutcheon,* or those in the soul of Lady Slane in Sackville West's *All Passion Spent.* The definition is apparently a generalization of Cicero's and Grotius's definition of war as *certatio per vim.* According to the older usage, war would certainly be regarded as a signal form of conflict. After the psychological aspects of conflict have shifted into focus, the sociologist Georg Simmel could ask whether actual struggle is not a form of solving a conflict rather than an instance of it.

We are interested in conflict because it demands a solution of one kind or another. With good reason, Professor Robert S. Woodworth centred his chapter on the conflict of motives[3] on an analysis of the processes in which decisions between alternative ways of behaving are made or frustrated. The treatment of all conflicts would gain in clarity of method and direction if writers would renounce the pseudo-scientific interpretation of conflicts as mere mechanisms, and orient their investigations on the problem of arriving at a *decision* by rational or other methods.

II.

It is characteristic of our age of twilight that in recent literature on conflict the cases in which a decision is *avoided,* and the pathological implications of such weaknesses, have not only been treated with preference, but that such phenomena have come almost to monopolize the name of conflict. Men of former epochs, if asked to cite a case of conflict, would have named Antigone, facing the choice between her duties to the dead brother and to the king of her city-state, Hercules at the crossroads, St. Antony tempted, Caesar before crossing the Rubicon, or Goethe leaving Friederike at Sesenheim. Today the archetypical cases appear to be a laboratory cat thrown into a quasi-neurotic state; or a badly constituted human member of our late Christian society, unable to master his instinctive impulses otherwise than by repression into a hypothetical unconscious and by the formation of patently neurotic symptoms. It is not less characteristic that this change in emphasis and approach is mainly due to the genius of two psychologists starting from mechanistic philosophies and interested mostly in the elaboration of methods appropriate to inorganic systems.

Pavlov, a great experimenter endeavouring to inaugurate a strictly objective science of animal behaviour on physiological lines, observed that in some cases the animals subjected to his experiments on the conditioning of reflexes developed chronic disturbances of their normal activity, with symptoms surprisingly similar to those of human neuroses. Following his principle of interpreting mental activity in terms of the mechanical reactions of the cerebral cortex to positive or negative stimuli, Pavlov saw in such quasi-neurotic disturbances instances of a collision between antagonistic excitations and inhibitions, and he showed that such conflicts can be artificially produced by linking a stereotyped motor reaction to a wider range of external or internal signals than those to which unconditioned or instinctive reflexes are adapted. We are not here concerned with the merits and demerits of this mechanistic theory of reflex conditioning nor with the question whether the findings of Pavlov and his pupils could not with much advantage be analysed in terms of motivational behaviour, as some leading psychologists have suggested. But we may be allowed to ask whether those experiments inflicted upon unhappy rats, dogs and cats prove more than the possibility of destroying the mental structure of an animal by demanding of them the solution of problems with which they could not deal effectively; and the diffusion of such disorganisation in such intensities that the whole organism is put in a state of extreme distress and disorder, apparently accompanied by feelings of pain and helplessness; a result that could only surprise such psychologists as were not ready to see the organism react *as a whole* to disturbances strong enough to affect the basic conditions of well-ordered adaptation to typical conditions of survival.

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[3] *Psychology, A Study of Mental Life,* 1st edition, 1922, 12th edition, revised and enlarged, 1940, pp. 392-5.

The only inference to be drawn from these experiments, relevant to the interpretation of human behaviour, seems to be the warning that men living on the lowest levels of mental life and thus restricted to reflex-like behaviour will react to novel situations, full of critical implications, with blind despair and passivity; a well-known phenomenon with which the student of revolutions and other crises is very familiar, and on which no new light is shed by skilful ways of torturing animals, except for the suggestion that even human adaptability may have its limitations and that beyond a certain range of sudden innovations no other reaction can be expected but pathological disorder.

It should be noted that Pavlov, in contrast to later writers of various schools, does not regard conflict, defined as a collision of elementary processes, as the only or even as the most important source of quasi-neurotic animal disturbances. In one of the most mature formulations of his theory[4] he enumerates four typical causes, the other three being: an excess of strength and complexity of stimuli; a straining of the inhibitory processes; and castration. He was probably wise in not attempting to achieve a specious unification of his aetiological scheme by defining conflict in such a loose sense that it provides a formal common denominator. It is not less noteworthy that he found the emergence of his "animal neuroses" to be mainly contingent upon the animal's type of organisation, or in Greek terms, its temperament: phlegmatic, sanguine, choleric or melancholy. Whether or not a conflict or any other cause leads to a lasting deviation from normal behaviour or even disorganisation, is thus seen to depend upon structural characteristics. Although to the last faithful to his conception of the cortex as a "mosaic", Pavlov recognised the limitations of an atomistic theory, claiming even that his own work allowed for the reconciliation of associationist and Gestalt methodologies. Like Freud in a similar situation, he finally acknowledged that the possibility of healing is strictly limited by typological and structural factors which cannot be modified by the experimenter or the physician.

III.

While Pavlov was as a physiologist venturing further and further into the field of animal and later human pathology,

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[4] *Lectures on Conditioned Reflexes. Vol. II: Conditioned Reflexes and Psychiatry,* tr. by W. Horsley Gantt, with an introduction by the translator, 1941, pp. 73ff.

Freud began as a specialist in nervous diseases but by the logic of his discoveries was led on to theories and speculations to which he gave the name of meta-psychology and which in fact deal with the metaphysics of organic life. Both analysts combined rare gifts of observation with an audacious propensity to generalise ruthlessly from a comparatively slender basis of established facts. Both built their theories not around a new insight into the essence of man but around a new method. Both seem to have discovered conflict as a source of mental disorganisation almost by accident. Pavlov noticed that what he calls experimental neuroses "were liable to occur in the early stages of our work, since in planning the experiments we had at first not even the slightest idea of the limitations and the natural resistance of the cortex".[5] Freud, in his *Autobiographical Study* (translated by James Strachey, 1935) has told how a "chance observation" (p. 34) made by his older colleague and friend Breuer in the treatment of a hysterical girl led up to a new way of relieving clouded states of consciousness by inducing the patient "to express in words the affective phantasy by which she was at the moment dominated". It was this observation which urged him on to consider a large number of neurotic disturbances as the outcome of a conflict of tendencies, antagonisms between a wish and a factor making for its repression.

"In all those cases", Freud wrote in his early account of *The Origin and Development of Psycho-Analysis*,[6] "it happened that a wish had been aroused which was in sharp opposition to the other desires of the individual and was not capable of being reconciled with the ethical, aesthetic and personal pretensions of the patient's personality. There had been a short conflict, and the end of this inner struggle was the repression of the idea which presented itself to consciousness as the bearer of the irreconcilable wish. This was, then, repressed from consciousness and forgotten. The incompatibility of the idea in question with the 'ego' of the patient was the motive of the repression, the ethical and other pretensions of the individual were the repressing forces. The presence of the incompatible wish, or the duration of the conflict, had given rise to a high degree of mental pain; this pain was avoided by the repression. This latter process is evidently in such a case a device for the protection of the personality."

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[5] *Conditioned Reflexes, An Investigation of the Physiological Activity of the Cerebral Cortex.* Transl. by G. V. Anrep, 1927, p. 285.

[6] Five lectures delivered at Clark University, Worcester, Mass., 1909.

In a slightly later article, *Some Character-Types met with in Psycho-analysis* (1915), we read: "For a neurosis to break out there must be a conflict between the libidinal desires of a person and that part of his being which we call his ego, the expression of his instinct of self-preservation which also contains his ideals of his own character. A pathogenic conflict of this kind takes place only when the libido is desirous of pursuing paths and aims which the ego has long overcome and despised, and has henceforth proscribed; and this the libido never does until it is deprived of the possibility of an ideal satisfaction consistent with the ego. Hence privation, frustration of a real satisfaction, is the first condition for the outbreak of a neurosis, although, indeed, it is far from being the only one."

At this stage, then, conflict consists in the clash between two incompatible tendencies organised in different systems of the personality, one aiming at satisfaction, the other at preservation. Neurosis is one form of solving such a conflict.

In his later writings, a series beginning with his "metapsychological" essay *Beyond the Pleasure Principle* (1920), Freud introduced important modifications of his earlier views. In *The Ego and the Id* (1923[7]) which the translator calls "a very obscure book" (p. 6), Freud explicitly repudiates the view that neurosis can be derived from a "conflict between the conscious and the unconscious". Such a formula would be incompatible with his later discovery that there is "something in the ego which is also unconscious, which behaves exactly like the repressed, that is which produces effects without itself being conscious and which requires special work before it can be made conscious". The premature dichotomy has thus to be replaced by "another taken from an understanding of the structural conditions of the mind, namely, the antithesis between the organised ego and what is repressed and dissociated from it". The ego, "a coherent organisation of mental processes" is also called an "institution" which regulates all its own constituent processes; it contains consciousness but more than consciousness, a rather distressing fact if we remember that for Freud "in the last resort the quality of being conscious or not is the single ray of light that penetrates the obscurity of depth psychology". On the other hand the acknowledgement of the insufficiency of his former theory opens the road to wider fields. Freud now acknowledges that "pathological research has centred our interest too exclusively on the repressed" (p. 19).

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[7] English translation by J. Rivière, 1st edition, 1927, 3rd edition, 1942.

The latest important locus on conflict as a source of mental illness seems to be a passage in *Group Psychology and the Analysis of the Ego* (1921) on the genesis of the neurosis: "It makes its appearance wherever the advance from directly sexual instincts to those that are inhibited in their aim has not been completely successful; and it represents a conflict between those instincts which have been received into the ego after having passed through this development and those portions of the same instincts which, like other instinctive desires that have been completely repressed, strive, from the repressed unconscious, to attain direct satisfaction. The neurosis is extraordinarily rich in content, for it embraces all possible reactions between the ego and the object—both those in which the object is retained, and others in which it is abandoned or erected inside the ego itself—and also the conflicting relations between the ego and its ego ideal."

Besides such conflicts between ego and id (transference neurosis), between ego and superego (narcissistic conflicts; see *Collected Papers,* Vol. II, pp. 250-5) and between ego and the outer world (which he regards as the cause of psychoses), Freud speaks of conflicts between principles[8] and finally of conflicts between the two primary instinct groups termed Life and Death instincts.[9] "Eros" and "Thanatos" are constantly struggling in the Id which has no unity of will; but the Life instincts have a closer relation to the conscious sphere as they make themselves felt as disturbances, for Eros is mainly an intruder opposing the death instincts in their striving towards a "nirvana" state of peace which is completely, or almost completely, achieved only at the level of inorganic matter. In reality both groups occur in fusions, and even the sadistic tendencies of destruction are to be regarded as compromises between the two groups. The Id is thus conceived as a mere battlefield; it has "no means of showing the ego either love or hate. It cannot say what it wants" (*The Ego and the Id,* p. 87).

It is thus somewhat surprising to find conflict in a quite recent American publication defined thus: "A painful emotional state which results from a tension between opposed and contradictory wishes, and is due to the fact that an unconscious (repressed) wish is forcibly prevented from entering the conscious system" (H. C. Warren's *Dictionary of Psychology,* Boston, 1934).

In this passage the range of reference is narrowed down to the restricted set of facts treated by Freud in his earliest writings, the repression neurosis, and what is still more regrettable, the order of cause and effect has been reversed. According to the dictionary-writer it is the repression which produces the conflict and the term which originally referred to a conscious clash of tendencies is now applied to an unconscious struggle between repressed impulses which are still powerful, and the ego tendencies holding them in a state of subterranean rebellion strong enough to produce painful feelings. Freud, even in his latest writings, clings to his first analysis of the core of the repression conflict. In *An Autobiographical Study* (which appeared first in German in Vol. VI of *Die Medizin in Selbstdarstellungen,* Verlag Meiner, and was published in America in 1927, in England first in 1935), by far the most lucid introduction to his thought, he describes the situation leading to repression as follows:

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[8] Pleasure and Reality Principles.

[9] *Beyond the Pleasure Principle,* 1920, Ch. V; *The Ego and the Id,* Ch. IV.

"Let us keep to a simple example, in which a particular impulsion had arisen in the subject's mind but was opposed by other powerful tendencies. We should have expected the mental conflict which now arose to take the following course. The two dynamic quantities—for our present purpose let us call them 'the instinct' and 'the resistance'—would struggle with each other for some time in the fullest light of consciousness, until the instinct was repudiated and the charge of energy withdrawn from it. This would have been the normal solution. In a neurosis, however (*for reasons which are still unknown*), the conflict found a different outcome. The ego drew back, as it were, after the first shock of its conflict with the objectionable impulse; it debarred the impulse from access to consciousness and to direct motor discharge, but at the same time the impulse retained its full charge of energy" (pp. 51-2, my italics).

This process of repression is likened to a kind of flight movement of the ego which protects itself against the constant threat of a renewed advance of the enemy by effecting an "anti-cathexis", thus impoverishing itself. The repressed impulse seeks gratification by circuitous routes producing neurotic symptoms whenever it succeeds in breaking through the ego-defences. It is interesting to see Freud here, as elsewhere, conceiving psychic life under the form of a perennial internal warfare.

It is probably this aspect of his theory which has led to such an extension of the conflict concept that it now includes the aftermath of the primary conflict phenomenon from which his analysis started. This "war-character" of psychic life is for Freud the basic phenomenon of *all* psychic experience and a necessary corollary of his mechanistic conception of psychology: where we have to do with natural energies blindly modifying each other's courses by interfering with their direction the outcome can only be an "all-war" interpretation when such processes are translated into the language of psycho-sociology. Such generalisations have their uses, provided they do not imply the dogma that all conflicts can be explained in terms of their most elementary and mechanical forms. It is worth recording that originally Freud not only reserved the term conflict to the sphere of consciousness, but that his theory leads up to a conscious choice. The therapeutic aim of his analysis is to uncover the repression, replacing it by "acts of judgment which might result either in the acceptance or in the rejection of the formerly repudiated". This means that the conflict, by the method called psycho-analysis, is to be brought to a *decision* in full consciousness, after the manner in which a normal personality acts. Seen from this point of view the repression, far from being the cause of conflict, is but a means of evading its being solved by the only genuine method; i.e., deliberate choice.

The limitations which psycho-analysis encounters in performing this operation are candidly exposed in one of the very last writings of Freud, *Analysis Terminable and Interminable.*[10] The outbreak of a neurosis is here attributed to a combination of two factors: (1) the existence of instincts that prove too strong to be restrained by the ego in question; (2) the persistence of suffering caused by an early endangering experience (trauma) which the immature ego was unable to surmount. Both factors are assumed to be generally coexistent and to reinforce each other in their pathogenic effects. But only when the second factor dominates can psycho-analytic treatment hope to arrive at definite results; and even in this case healing may not occur if the construction of the defence mechanisms, through which the ego had tried to protect itself against attacks from repressed impulses, had led to a lasting "crippling" of the ego. Nor is it yet possible to answer the question whether the struggle between "instinct" and "ego" can be resolved for all time. The task of integrating the instinctual forces in the "synthesis of the ego" can be successfully resolved only in the case of a "normal" ego; it is likely to prove impossible in the case of "psychotics", a statement to be further qualified by the reminder that normality is to Freud an "ideal" fiction.

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[10] *International Journal of Psycho-analysis*, October, 1937, Vol. 18, pp. 373-405.

These statements of Freud are not only important by virtue of their contrast to the less critical expectations of lay-brothers and sectarians; they indicate also the points where Freud's (or Pavlov's) work can be coordinated with two other major ways of approach of contemporary psychological thought: the structural view of the psyche, inaugurated by Wilhelm Dilthey, and Pierre Janet's effort to express the findings of psychopathology in terms of psychic strength and weakness; two methods of thought which it should not be impossible to combine, for the strength of an organic structure will largely determine the force of actions and reactions. The preeminence of the structural factor is shown by Freud's admission that in the case of its constitutional or functional weakness (relative to the strength of the instinctual forces), psycho-analysis is likely to fail and that a similar result is to be expected if an unsuccessful attempt at integration or of avoidance has led to structural or dynamic "impoverishment" of the ego-structure. It would then appear that conflicts are pathogenic only if they occur in a psyche (ego) of insufficient strength of structure, relative to the tasks set by the actual urges coming from non-conscious sources. Only conflicts that find the ego comparatively weak, cowardly, immature, debilitated or unprepared are liable to cause illness and to prolong distress.

In spite of much loud criticism paired with much silent assimilation of his thought, the work of Freud still dominates contemporary psychology in almost every field that can claim a more than technical interest. Most writers on conflict are concerned with the process of clarifying, amplifying, diluting and "secularising" Freudian theories, the philosophical principles and first great formulations of which are due to Schopenhauer and Nietzsche, but which have become a matter of empirical research and systematic therapy mainly through Freud's tenacious and inventive intellect. We owe to G. C. Jung some profounder interpretations, free from mechanistic limitations, which open a wide range of applications to mental and spiritual phenomena, treated with deeper respect for the dignity of mental life and creation.

In the analysis of the fundamental neurotic conflict situation there is, however, no great difference between Jung and Freud except for Jung's stressing of the significance of actual and recent conflicts in contrast to Freud's tendency to insist on the infantile traumata most accessible to the method discovered, or re-discovered, by him. Jung's approach is less method-centred and instrument-bound than Freud's; it thus gains in elasticity and scope but must forego the questionable advantage of supplying a school with typical recipes; healing becomes again the work of the creative person, the spiritual guide; and concepts which transcend the sphere of empirical research become symbols meaningful in the hands of the true mystagogue, dangerous in the hands of the sneaking dilettante of Eleusis.

IV.

In academic literature the process of slow and sinuous diffusion of Freud's ideas is easy to follow; with the majority of writers of repute, the aspect of dilution and eclectic mixture prevails. Even where Freud's theorems are treated with great reserve, the term conflict remains associated with pathogenesis; with painful states caused by the co-existence of incompatibilities; and with the deadlock resulting when the clashing tendencies are of equal momentum. It is noteworthy that even so independent and critical an author as William McDougall (in his late *Energies of Men,* 1st edition 1932, 5th edition 1942) treats only such cases under the heading "conflict of tendencies" and seems to imply that opposing tendencies ("tendency" defined as "active energy directed towards a goal", p. 64) will generally produce waste, pain and disabling.

"While some tendencies are capable of harmonious co-operation, generating a single conation in which these energies are combined, others are naturally opposed, so that, when simultaneously aroused, they inevitably conflict with each other. We may occasionally see unmistakable evidence of such conflicts in the behaviour of animals. In man, conflict of tendencies plays a much greater rôle; it is responsible for a vast amount of waste of energy. . . . The realisation of this wasteful and destructive role of mental conflict was the first essential step in the great modern advance of psychiatry and mental hygiene. . . . It is not too much to say that the chief aim of all education, of all training, of all discipline and moral influence, should be so to influence the growing child that he shall become a harmoniously and strongly integrated personality: for only such a person can avoid the enduring conflicts that cramp and hamper the free working of man's natural tendencies, conflicts that waste his energies in fruitless strife of one part of his nature against another, rendering him unhappy and inefficient and, in the worst cases, making him a doleful burden to his friends or an enemy to society" (p. 134). McDougall notes that "the most richly endowed natures are peculiarly liable to suffer the pains and penalties of conflict which is the price man pays for his power of sustained effort directed to distant goals or ideals"; he sees in this observation the "kernel of truth in the saying that genius is akin to madness" (p. 135). But he insists on regarding conflict as a burden bearing a negative sign in the economy of the soul. "Internal conflict is always exhausting; for it involves a wasteful consumption of the vital energies of the organism." The pathogenic and, to say the least, contra-economic aspects of conflict situations are thus still dominating, and the question is not even raised whether the necessity of fighting one's way through such internal strife may not be invigorating, productive of new energies, and perhaps a precondition for the building up of a strongly integrated personality structure. The poet's "For you will thrive through combats that are fitting" (*"Denn du gedeihst in kaempfen die dir ziemen"*, Stefan George) has no meaning in a world where suffering and strife in themselves are felt to be baneful. Comparing this attitude with the almost Herakleitean interpretations of Georg Simmel (*Soziologie*, 1909) and Havelock Ellis (*Philosophy of Conflict*, 1919) one becomes aware how much the psychic climate of the West has changed since the first decades of the twentieth century. The new internal as well as international pacifism would not have been understood either by Confucius or Aristotle or Zoroaster; it is Buddha's teaching circling around the one fact of suffering, and Lao-tse's praise of inaction and withdrawing from conflict which again culminate at this late hour, in conjunction with the less and less questioned postulate of the primacy of economics.

In the work of some recent American psychologists the tendency towards unconditional stability seems to be on the increase to rather alarming levels. Professor Guthrie, of Washington University, in his instructive and lively book on *The Psychology of Human Conflicts* (1935), defines conflict as "a tug of war in which two incompatible systems are both active. The rival systems fail to settle their rivalry in the central system, so both systems appear in the muscles" (p. 27). "Such a condition often causes exhaustion, which may prolong and exaggerate the conflict; action may become confused and inefficient. Conflict thus appears as a most important source of exciting emotion defined as a physiological condition in which the general musculature is tense, and where any action occurring is likely to be exaggerated" (p. 28).

While even Freud conceived conflict as something to be resolved in a decision, for Guthrie the phenomenon of conflict is plainly identical with a lack of decision due to a failure of inhibition. The desirable state would be a situation "in which one of two competing action systems suppresses the other through the nervous system" (p. 27). By giving stimuli to muscles and tendons an action can forestall a competing action. In an ideal state such prevention, i.e., elimination of the rival action, could always be achieved, either by the use of stronger stimuli by one action, or by more complete integration, or through assigning priority, i.e., through an established hierarchy of objectives. Conflict occurs when these methods fail.

It is easy to see that such a narrow circumscription of the phenomenon is suggested by the very methodology of the school which Guthrie represents. In order to secure a maximum of scientific reliability the external aspects of every phenomenon are stressed, i.e., those features which can be measured directly or indirectly by methods borrowed from the natural sciences. The deliberations resulting from a conflict cannot be described in physical terms, nor is the struggle between instinctual and reflective impulses capable of objective measurement. The tensions in the muscular system, however, by which an "action system" tends to realise itself *in space,* exhibit electric phenomena which can be recorded by laboratory methods. To define conflict as co-extensive with deadlock of tendencies, or "action-systems", implies therefore the possibility of determining experimentally whether or not conflict occurs. It is thus the existence of a certain method which, here too, suggests the formation of the fundamental concept and the setting of the problem, whereas a healthy state of research and thought appear to require that methods should be chosen according to the nature of the set of facts that is to be investigated.

There is here, however, more than this motive at work. According to the great French psychiatrist Janet, whom Guthrie follows in many ways, most neurotic conditions are caused by the patient's inability to make a choice (pp. 171, 250). "Conflict" defined as such an inability gains thus from another point of view a central place in the theory of those pathological phenomena whose growth seems to characterise more than any other single trait the psychology of the present age. Conflict is here identified with the very conditions which threaten to make the solution of a genuine conflict impossible. As with Freud the task of the healer is to help the patient to arrive at a decision; most conflict-difficulties would vanish if both the contending action systems were articulate in speech. With Guthrie, however, accent is laid on habit-formation, and the psychologist is mainly concerned with teaching or training the individual to evolve habits that will allow him to adapt his behaviour to an external environment. "All disturbances of mental health are habit maladjustments" (Guthrie, p. 70), and the chief obstacle to a cure is that a breakdown, the effect of indecision and "conflict", like all habit-adjustments, strongly tends to be self-maintaining. According to Guthrie the way in which the deadlock is broken does not concern the psychologist. Speaking of fascist and communist dictatorships he writes: "We may deplore both kinds of régime, but the fact remains that the generation reared under that régime does not deplore it. From the psychologist's point of view the order must be judged first on the basis of its stability" (p. 393). For "habit can be depended upon to adjust us to any cultural order provided that we are given our chance to confront its realities early and provided that it does not change more rapidly than our habits can be led to change. Only for the middle-aged are the times out of joint in this dictatorial age" (p. 393).

The psychologist is here regarded as a kind of engineer who solves by technical means the problem of adapting our life with a minimum of waste and friction to a certain condition of the outer world. If the new equilibrium is reached by a radical impoverishment of our social and mental heritage this epiphenomenon does not concern the psychologist. His main concern is that the machine man is functioning without breakdowns and other accidents. The fact that a science which purports to deal more profoundly and radically with the nature of man than any other empirical discipline is about to define its object in such a way that the character of man and of human life is systematically dehumanised, is a not unimportant symptom of the Spirit of the Age.

Even when the psychologist, from motives issuing from other parts of his personality, is not ready to believe in totalitarian methods of "conditioning" whole populations according to the wishes of their ruling sets, be they majorities or minorities, his method would just seem to wait for such optimal opportunity of proving its value. Both the political form and the scientific habitus belong to a world where true problems have *ceased to exist*; only technologies can survive in a brave new world which would reserve the name of reality only for processes that can be tested under laboratory conditions.

In these circumstances it cannot surprise us that the conflict situation has come to be exemplified by the perplexities of animals forced by their master to face the choice between two doors marked by mysterious signs one of which will prove to give access to food, the other to electric shocks. The quasi-neurasthenic cat, perplexed by the shape of new signs in which the two original characters seem to have entered a diabolic union, is indeed a suitable symbolic representation of the moderately intelligent "man in the street" unable to choose between socialism and individualism, marriage and companionship, impressionism and expressionism, all of which seem to promise increased happiness and all of which take on traits of their opposites the longer one looks at them; in the meantime he develops neurotic traits, refusing to see that any alternative is a *task* demanding to be resolved by an act of choice, rather than an opportunity for getting confused and excited, and in the end being treated by an expert in psychic conditioning.

V.

In Western literature on the psychology of conflict the aspects of suffering and of waste appear to dominate, in accordance with the hedonistic and economic preoccupations of the cultural environment. It is perhaps symptomatic of recent developments in the eastern sphere of Europe that in the work of A. R. Luria, Professor of Psychology at the Academy of Communistic Education in Moscow[11] the accent has shifted from pain to disorganisation and from emotion to control. It may be more surprising that the post-revolutionary Russian author claims to be the first to overcome the limitations of what he calls "the preliminary period in the development of psychology" because he was the first to experiment systematically on "the behaviour of the living, concrete personality" while former empirical psychologists have failed in the examination of the individual psychological process. Such regard for the individual in Bolshevist Russia becomes, however, understandable if it is realised that it is under the aspect of complete rationalisation that the concrete living person is here investigated. In former psychology, he holds, "will and intellect were considered as separate entities, and the latter was not seen as the key to the development of will".

Yet even in these brilliant experimental analyses, which Professor Gardner Murphy called "almost epoch-making", there is continuity with the pre-revolutionary past. Luria speaks the language of dialectical materialism but he has not forgotten the teachings of the Berlin school of Gestalt

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[11] *The Nature of Human Conflicts, or Emotion, Conflict and Will, An Objective Study of Disorganisation and Control of Human Behaviour.* Translated from the Russian and edited by W. Horsley Gantt, with a foreword by Adolf Meyer, Johns Hopkins University, 1932.

psychologists and he readily acknowledges that it was Pavlov who first realised that emotional disturbances caused by conflicting impulses affect the organism as a whole and cannot be studied in segmental fields. At first sight Luria's experiments might appear as mere extensions of Pavlov's experiments on artificial "animal neuroses" to human beings. In fact, Luria opens a new chapter in the psychology of conflict, not only by virtue of his resourceful talent for elegant (i.e., simple and decisive) experimentation on various categories of human beings, criminals, students, neurotics and normal persons faced with difficult tasks, but by virtue of his methodological insights. He radically rejects Pavlov's adherence to mechanistic principles and his belief that it is in the study of animal "neuroses" that the key to human behaviour in conflict can be found. Concepts of elementary inhibitions and excitations are quite inadequate to explain processes in "higher complex wholes" in which they acquire "a new qualitative significance" (p. 6). "The problem is to apply to physiological processes the methods of psychology, not for a minute forgetting that we are studying the structure and function of human behaviour" (p. 14).

The human mind is not a mosaic of accidentally coordinated elements but a historical growth in which dominating and dominated systems have been differentiated. From the examples given it must be assumed that every case of disturbance, difficulty, novelty in a situation requiring adaptation, is considered as an instance of conflict. The two main types under consideration are called "conflict of setting" and "conflict of defection". In the first case disorganisation is produced when a subject "set" for one type of action, e.g., understanding words uttered in one language, is suddenly confronted with the task of understanding words of another language, thus encountering difficulties which express themselves in the disorganisation of a motor mechanism linked to the language system. In the second type of conflict the subject is worried by a belief that he will be able to solve a certain problem as in former experiences, contrasting with new experience which suggests that the solution transcends his faculties. Here the conflict is between a feeling of assurance and the necessity of acknowledging defeat.

It is certainly not without cultural significance that such types of conflict have impressed themselves upon a psychologist who has lived through the early stages of a revolution which must have produced intense strain owing to differences in "setting" and severe difficulties in achievement corresponding to hopes and beliefs. In both cases Professor Luria has shown not only that emotional disturbances will follow, a fact well known to common experience, but that in such a situation the total behaviour of the person will lose coherence and precision of reaction. It is not less significant that the production of such disorganisation states is difficult in normal subjects but becomes easily demonstrable in psychoneurotics. In normal man the higher levels of mental life are resourceful enough to provide solutions in which those traits characteristic of Luria-conflicts become invisible. This explains why, for example, the technique of setting one conditioned reflex against an unconditioned one, as in the animal experiments of the Pavlov school, gives negative results for ordinary human situations under the control of thought and speech.

For Luria, too, conflict is in its purest manifestation associated with a deadlock of impulses. He is primarily concerned with what he calls "intense" and "stable" conflicts, and these are found to be identical with neurotic phenomena, in which a deadlock has become chronic, affecting the whole of the personality. It is, however, not quite true that diffuse and in extreme cases disorganised behaviour will occur "each time the behaviour becomes conflicting" (p. 331).[12] These effects can be avoided if the person refuses to solve the problem with which the conflict situation confronts him, or if there is an effective "functional barrier" which restrains the surplus excitation from flowing over into the motor sphere, thus enabling the organism to gain time during which the organising forces can be marshalled. On the other hand the disorganisation proves to be more intense the nearer the origin of conflict is to the motor sphere.

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[12] Although Luria in general consistently refers to conflict as one of the most important "mechanisms" by which affective disorganisation is produced, he sometimes appears to identify at least "manifest conflict" with such disturbances of normal behaviour. This seems to imply a tendency towards circular definition as it is from the observation of such disorganised

This is by no means a trivial inference from the fact that the disorganisation only becomes manifest in the motor sphere. Luria seeks the explanation of this crucial phenomenon in the deep-seated discrepancies between the motor and the sensory, or in his language "communication", systems: the first rigid and offering only a small range of variations, the second plastic, rich and highly variable. Perhaps it is not too fanciful, I would suggest, to seek the explanation of these differences and their effect on behaviour in conflict in biological immanent teleologies. As it is the function of the motor sphere to secure the active adaptation of the organism to the material environment, a conflict arising in or near this comparatively stereotyped system endangers immediately the existence of the organism and thus calls forth random movements if the organism is not strong and wise enough to inhibit reaction until it has gained time and energy in order to cope with the dangerous situation in a definite, novel way. Conflicts remote from this critical sphere can remain isolated in the region of perception or meditation without immediate organic danger—as every Oriental mystic or Occidental dialectician knows when pondering serenely over the co-existence of the opposites in god or cosmos or man.

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behaviour that the existence of a conflict is inferred. Such circularity appears, as Professor Maslow* observed, almost unavoidable in experiments with animals where objective methods are focused on externally observable behaviour. In reading Luria's work in the American translation it must, however, be kept in mind that this edition does not claim to be more than a free version, sometimes even a mere résumé in the translator's own style, especially in the last decisive chapters.

* A. H. Maslow: *Conflict, Frustration and the Theory of Threat*, Journal of Abnormal Psychology, XXXVIII, 1943, pp. 80-86.

Luria's title to distinction appears to rest not on his ingenious technique of producing and measuring disorganised human behaviour in different spheres or functions, but rather on his insight (corroborated by experiment) into the way in which human beings are able to control their behaviour, overcoming emotional disturbances and motor disorder, by bringing into play the highest types of psychic activity, language and other symbolic functions which allow them to organise the chaotic states produced by diffuse reactions. It is his discovery that language not only designates objects and expresses subjective states but *organises action* both in relation to external objects and within the personality, which may in fact be called epoch-making. Following the methodological hints of the late Professor Kurt Lewin he has done more than any other living author to indicate the direction in which the psychological solution of the problem of "free will", the determination of man by himself, is to be sought: in man's capacity to create internal "signals" which mobilise mechanisms for use in directions not prefigured by natural necessities and inherent in zoological structures.[13]

It does not diminish the conceptual and experimental achievements of these authors if we recall that the underlying phenomenon which constitutes the most essential biological aspect of the human mind had been formulated with great clarity as early as 1911 by Henri Bergson in his Huxley

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[13] It should be noted that Pavlov in his last phase of thought seems to have come remarkably near to Luria's standpoint when he speaks of language and the relations of cortical and sub-cortical functions (see *Lectures*, etc., Vol. II, pp. 107, 111ff, 179ff and passim). Professor W. M. O'Neil, University of Sydney, was kind enough to direct my attention to Clarence V. Hudgins: *Conditioning and the Voluntary Control of the Pupillary Light Reflex*; The Journal of General Psychology, Vol. VIII, Number 1 (January, 1933) who has shown that "verbal stimuli can become conditioned stimuli for the pupillary response even if such stimuli are self-presented by the subject either vocally, whispered, or subvocally" (ibid., p. 47). The author, who seems to have had no knowledge of Luria's work, quotes his own and W. Hunter's report to the 10th International Congress of Psychology (Copenhagen, 1932): "The hypothesis is offered that so-called voluntary behaviour is essentially a conditioned response having a characteristic latency and temporal course and under the control of self-excited receptor processes" (p. 48).

Lecture delivered at Birmingham: "Le cerveau de l'homme a beau rassembler, en effet, à celui de l'animal: il a ceci de particulier qu'il fournit le moyen d'opposer à chaque habitude contractée un automatisme antagoniste. La liberté, se resaisissant tandis que la necessité est aux prises avec elle-même, ramène alors la matière à l'état d'instrument. C'est comme si elle avait divisé pour régner" (*L'Energie spirituelle,* 6ième ed., 1920). To use this language would perhaps not be open to a Russian psychologist of today. But it is significant that man's power to shape his own destiny by methods proper to "the highest levels of cortical organisation" through signals given by man to himself in the form of language commands should in the revolutionary atmosphere of Russia be made the crowning theme of a psychology of conflict.

Like Freud's theory, the psychology of Luria is profoundly *paneristic,* if we may form this term from the Greek *eris,* strife, in order to designate a state in which the warring of elements against each other is the prototypical fact. Conflict emerges, with Luria, in every case where one tendency or feeling collides with another; the control of behaviour itself which terminates the affective disturbances is thus due to the introduction of a new conflict between the emergent cortical and the older sub-cortical systems of behaviour. In fact, Luria regards this development as a "newly regulated system coming into conflict with the primitive sub-cortical activity and overcoming it, creating all the new forms of organisation" (*The Nature of Human Conflict,* Am. edition. p. 10). Conflict gives thus rise to disorganisation which is overcome by a new conflict, an interpretation which makes the theory fit well into a cosmological framework expressed in the formalised language of dialectics—the new orthodoxy of eastern Europe.

VI.

Is it possible to arrive at a definition wide enough to embrace conflicts emerging at every level of organisation and yet sufficiently characteristic (*prägnant*) to make significant statements possible? We are with good reason accustomed to speak of conflicts between individuals, between collective entities, between motives in the individual mind, between elements of a civilisation (e.g., religion and art), between cosmic agencies, God and Devil; we may thus speak of inter-individual, inter-group, inter-cultural, inter-mundane conflicts if the relations of the striving parties to the wholes of which they are a part are to be disregarded; or of intra-group, intra-oecumenical, intra-cultural, intra-cosmic conflicts if strife between the two parties affects strongly the integrating unit. In the first case such implications may be too small to be considered: a State is not in danger of disorganisation if two ordinary citizens occasionally come to blows; it is different if such collisions become chronic or happen to concern two heads of powerful factions. It seems advisable to speak in the first case of *collision,* as also in the case of the "conflicts" of elementary tendencies studied by Luria; and thus to reserve the term conflict for cases in which the collision *threatens the stability and viability of the integrating unit.* This would relieve us from the necessity of speaking of conflict if one restaurant guest is disappointed by another guest's not passing him the salt without further request, or if savages, expecting to see gods arriving on their shores, learn that they are mere mariners and traders.

Only if the integrating unit is affected, actually or potentially, are we seriously concerned. In many cases this unit is not of the organised type of which States and Churches are the outstanding examples. Even in the case of one solitary wanderer slaying another wanderer on a lonely road, the situation concerns members of two groups, or outcasts thereof, and all phases of their fight are coloured by these connections and background relations. (Fight itself is a form of association, however short, rather than the termination of social bonds, as Georg Simmel suggested.)

In all these cases the threat of disorganisation is caused by the tension generated in a sphere (or "field") of interaction through the presence of a hormic incompatibility. Conflict thus appears as a process, or a pattern of a concatenation of processes, resulting from antagonism and tending to resolve it. In a state of deadlock such solutions seem to be out of reach. We are concerned with conflict just because they demand to be terminated by one solution or another, and the striving for such a solution is an essential ingredient of such processes.

Taking up the problem of conflict where it arises in actual life, harassing individuals and groups and making them aware of vital dangers, but enlarging the scope of vision so as to include all analogous antagonisms in the non-human sphere, we may thus define conflict as a *critical tension in an organismic field induced by hormic incompatibilities.* "Critical" here refers to the danger of disruption and disorganisation of an organismic whole, be it an atom, a personality, a trade union, or the cosmos. The definition is wide enough to embrace not only conflicts occurring at all levels of organisation but also all phases of conflict from the first stage of ultimate urges to the last chapter of restored peace and order (the terms tension and field to be defined in accordance with recent bio-psychological work). The definition designates the point where human concern is aroused and where the need of counter-action may be felt and satisfied; it is not implied that conflicts *per se* are good or bad but that they are liable to lead to a crisis of the structure, or configuration, in which they occur. Solutions of conflict situations thus become intelligible as a means of preventing the strain from reaching critical intensity or extension, or of overcoming the danger of disorganisation after that critical mark has been overstepped.

CATEGORICALS AND HYPOTHETICALS IN GEORGE BOOLE AND HIS SUCCESSORS

By ARTHUR N. PRIOR

GEORGE BOOLE has for a long time been revered as the "father of Symbolic Logic"; but our salutes to him have tended to be a little distant—he has been more revered than read. There will be less excuse for this now that his first logical work, *The Mathematical Analysis of Logic* (1847) has been reprinted;[1] and he is both readable and worth reading. *The Mathematical Analysis of Logic* is quite a small book (82 pages) and only its last two sections require a very specialised knowledge of mathematics. The rest of it is a fairly straightforward application of algebraical methods to the traditional topics of Formal Logic handled in the traditional order. Even this, however, does require a little understanding of the line of mathematical advance which Boole thought of himself as continuing. (The simplest description of this line of advance with which I am acquainted is that to be found in the first chapter of W. K. Clifford's *Common Sense of the Exact Sciences.*)

Algebra, as we learn it at school, formulates rules for the use of groups of symbols—rules such as

$$xy = yx$$
$$x(y + z) = xy + xz$$
$$x(1) = x$$

But what do these symbols represent? What are the entities which obey these laws? We were taught at school that they were numbers: but what is a number? A number, in the strict sense, is what you count with; but the laws of algebra are applicable to other things besides numbers in that sense. In counting the people in a room, we never arrive at such results as $2\frac{5}{8}$ or -7, but it is as true that $2\frac{5}{8} \times \frac{3}{4} = \frac{3}{4} \times 2\frac{5}{8}$ as it is that $8 \times 6 = 6 \times 8$; and it is as true that $-7(1) = -7$ as it is that twice one are two. These entities which are not numbers in the sense of positive integers, but to which the laws of algebra apply as well as to positive integers, are for the most part related to positive integers in quite simple ways. Thus "-7" means the *operation* of subtracting 7 from some other integer, and the equation

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[1] Basil Blackwell, 1948. 7s. 6d. net.

$$-7 + 4 = -3$$

means that the operation of subtracting 7, followed by that of adding 4, yields what is yielded by the operation of subtracting three. (It does not mean that if you count some groups of objects you will find that they contain -7 members, and if you add four more objects to such a group you will obtain one with -3 members—such language is simply the nonsense which we thought it was when we were first taught about minus quantities.)

Boole's idea was to apply the symbols used in algebra, not merely to operations upon numbers as well as to numbers themselves, but to quite other operations, such as that of forming objects into classes, according to their properties, without counting them at all. He called his x's and y's "elective symbols", x symbolising the selection of all the Xs in some given group and making a class of them, y the selection of all the Ys and so on. He found that if thus interpreted his symbols obeyed the same laws as they did if interpreted as numbers, and another law as well. For instance, when x and y are "elective symbols", as well as when they are numerical symbols,

$$x\,y = y\,x.$$

On the "elective" interpretation, this means that the operation of selecting all the Xs from some given group, followed by that of selecting all the Ys from the resulting class, yields the same final class as is yielded by the operation of selecting all the Ys from the given group, followed by that of selecting all the Xs from the class that results. Select all the red things in a given group, and select all the square things from the class you now have, and you will obtain the same class as you would have done had you first selected all the square things from the given group, and then selected all the red things from the class thus obtained.

The rule which does not apply to most numerical symbols, but does to all elective ones, is the rule

$$x\,x = x,$$

i.e., the rule that if you select all the Xs from a given group, and then select all the Xs from the class thus resulting, you might just as well have spared yourself the second operation. Where such a symbol as x stands alone, it is understood to represent the selection of all the Xs from the entire universe, which Boole represents by the symbol 1. I think this symbol must also be sometimes interpreted in his system as the *operation* of selecting all the objects in the universe. Thus the law

$$x(1) = x,$$

which holds good of "elective" as well as numerical symbols, must be interpreted as "The operation of selecting all the Xs, followed by the operation of selecting all the objects-in-the-universe that are in the class thus formed, yields what is yielded by selecting all the Xs." Similarly, the law

$$\mathrm{x}(0) = 0,$$

which also holds of "elective" symbols as well as numerical ones, must mean that "the operation of selecting all the Xs, followed by that of selecting nothing from the class thus formed, yields what is yielded by just selecting nothing", or alternatively, "yields nothing". The expression "$1-x$" similarly means either the class which is left after all the Xs have been taken from the universe, or the operation of selecting this remainder-class. This systematic ambiguity of the symbols is something quite usual in algebra. Thus "$x - y = z$"

may be interpreted either as "the subtraction of the number y from the number x yields the number z", or as "the operation of adding x to any number, followed by that of subtracting y from the result, yields what is yielded by the operation of adding z to the original number". The truth of the law is unaffected by the interpretation, except that on the first interpretation the law will be meaningless unless x is greater than y.

Propositions, in Boole's system, are represented as equations. Thus the proposition "All Xs are Ys" appears as the equation

$$x\ (1 - y) = 0.$$

This asserts that if you first select all the Xs there are, and then select from these the ones which are not Ys, you will have nothing at all. The syllogistic premises "All Xs are Ys" and "All Ys are Zs" becomes the pair of equations

$$x\ (1 - y) = 0 \ldots\ldots\ldots\ldots(1)$$

$$y\ (1 - z) = 0 \ldots\ldots\ldots\ldots(2)$$

and the problem of obtaining the conclusion of this syllogism is identified with the algebraical problem of eliminating y from these equations, i.e., of deducing from them an equation in which y does not appear. Boole uses a generalised method of doing this, but for the benefit of those who are not mathematicians the schoolboy method may be worth recalling. Equation (1) may be re-stated in the form

$$x - xy = 0 \ldots\ldots\ldots\ldots(3)$$

The two sides of this equation will still be equal if both are multiplied by $1 - z$, giving us

$$x\ (1 - z) - xy\ (1 - z) = 0 \ldots(4)$$

Also, the two sides of equation (2) will remain equal if both are multiplied by x, giving us

$$xy\ (1 - z) = 0 \ldots\ldots\ldots\ldots(5)$$

Finally, if each side in equations (4) and (5) is added to the corresponding side of the other equation, the sums will be equal, giving us

$$x\ (1 - z) = 0$$

And this, in plain English, asserts that nothing is both an X and not a Z, i.e., that all Xs are Zs, which is the required syllogistic conclusion.

Boole's handling of the particular proposition "Some Xs are Ys" is very involved and not at all happy. It amounts to identifying this proposition with the conjunction of universal propositions "All VXs are Ys, and all Vs are Xs, and all Vs are Ys, and all XYs are Vs". It did not occur to Boole, as it did to later symbolists (notably Venn), that if "No Xs are Ys" is correctly represented by an equation, namely $xy = 0$, its contradictory, "Some Xs are Ys" must be represented as the assertion not of an equality but of an inequality, namely $xy > 0$. One consequence of Boole's rendering of the particular proposition is that it leads him to a rather curious theory of existential import. He holds that not only universals but *all* categorical propositions "are resolvable into a denial of the existence of certain compound classes, no member of one such class being a member of another" (p. 77). He substantiates this by first propounding the now familiar doctrine that "the Proposition, All Xs are Ys, expressed by the equation $x\ (1 - y) = 0$, is resolved into a denial of the existence of a class whose members are Xs and not-Ys"; and goes on to say that particular propositions may be resolved into conjunctions of universals with the same import. Modern symbolists would agree with him about the universal proposition, but not about the particular, which, since the universal which contradicts it "denies the existence of a certain compound class", must itself *assert* the existence of this same compound class. Boole goes on, however, to give a valuable answer to an objection which might be raised against the modern doctrine also. "It may be asked, is not something more than a system of negations necessary to the constitution of an affirmative Proposition? Is not a positive element required? Undoubtedly there is need of one; and this positive element is supplied in the case of categoricals by the assumption (which may be regarded as a prerequisite of reasoning in such cases) that there *is* a Universe of conceptions, and that each individual it contains either belongs to a proposed class or does not belong to it." This assumption, of course, must be made in the case of negative propositions also; and the failure to recognise the need for making it has led modern logicians into some tangles, witness the discussions in *Mind* a few years ago, of the "presuppositions of existence" involved in the contradiction of singular propositions.

In his treatment of hypothetical propositions, Boole uses the same symbols, and the same algebraical axioms, but gives the symbols a special interpretation. Adopting the view of many "traditional" logicians, such as Whately, that hypothetical propositions are simply categorical propositions with other propositions as their subject matter, he treats the symbol x in this context as an ordinary "elective" symbol, which "selects those cases in which the Proposition X is true" from the "hypothetical Universe", which "comprehends all conceivable cases and conjunctures of circumstances", and is of course represented by 1 (p. 49). His further description of this "universe" makes it clear that it is to be conceived as an exhaustive collection of mutually exclusive "truth-possibilities", such as have now come to be associated with the name of Wittgenstein. It is, in fact, that "logical space" to which Wittgenstein gives its lines of latitude and longitude by his "truth-tables"; truth-tables are just a device for graphically illustrating Boole's treatment of hypotheticals —or rather, for illustrating what that would have been if Boole had followed out consistently the interpretation of his symbols which we are now considering—in the same way as Venn's diagrams graphically illustrate Boole's treatment of categoricals. The contents of this "hypothetical Universe", Boole says, may be completely described in terms of x as

$$(x) + (1 - x)$$

(i.e., as those "cases" in which the proposition X would be true, and those in which it would not), or in terms of x and y as

$$xy + x\ (1 - y) + y\ (1 - x) + (1 - y)\ (1 - x);$$

(i.e., as those cases in which X and Y would both be true, those in which X would be true but not Y, those in which Y would be true but not X, and those in which neither X nor Y would be true), or in terms of x, y and z as a sum of eight expressions, and so on. In every case, it may be noted, the algebraical sum of the expressions is unity ($x + 1 - x = 1$, and so on).

He then goes on to say that when 1 represents this hypothetical Universe, "$x = 1$" may be interpreted as "X is true", and "$x = 0$" as "X is false". Disjunctive and hypothetical propositions, being reducible to assertions that certain conjunctions of propositions are false, are also represented by equations. Thus since "Either X is not true or Y is not true" amounts to the denial of the conjunction "X is true and Y is true", it may be written "$xy = 0$"; and since the hypothetical proposition "If X is true then Y is true" means that X is not true in conjunction with the denial of Y, it may be written "$x\ (1 - y) = 0$"; and the inference "If X is true then Y is true, and X is true, therefore Y is true" becomes

$$\begin{aligned} x\ (1 - y) &= 0 \\ x &= 1 \\ \text{Therefore } y &= 1 \end{aligned}$$

—a deduction which is algebraically warranted by the consideration that if $x = 1$, $x\ (1 - y)$ can only be equal to 0 if $1 - y = 0$, i.e., if $y = 1$. The inference "If X is true then Y is true, but Y is false, therefore X is false" is represented and justified analogously.

But this interpretation of "$x = 1$" and "$x = 0$" is quite inconsistent with Boole's preliminary account of the "hypothetical Universe". For what "$x = 1$" means, if this preliminary account is to be taken seriously, is that the selection of the "cases" in which X would be true yields the same result as the selection of all the "cases" or truth-possibilities which the "hypothetical Universe" contains; and this, so far as I can see, would only be so if X were not merely true but, in modern parlance, a "tautology", or in older language, a "merely formal" proposition (like "Either A or not-A"). Similarly, "$x = 0$" should in consistency be interpreted, not merely as "X is false", but as "X is self-contradictory" (i.e., as "No possible case or conjuncture of circumstances is one in which X would be true"). In short, the only interpretation of this part of Boole's work on which it can be regarded as an application of his "calculus of classes" to a special subject-matter, is one which makes it a means of passing formally from one or more purely formal equivalences to another purely formal equivalence. This, of course, is something that is well worth doing, and we shall see that it is of considerable interest that what amounts to the modern "Wittgensteinian" method of doing it may be exhibited as simply a special application of the Boolean "calculus of classes"; but it is not what Boole sets out to do. However, something very like what Boole sets out to do *can* be done even when his "calculus of propositions" is consistently interpreted in the way just suggested.

In Boole's "calculus of classes" equations are used to represent both formal equivalences like $xy = yz$, and quite material premisses like $x(1 - y) = 0$ (which might mean "All dandelions are yellow"). And inferences, e.g., valid syllogisms, are "justified" simply by performing them—by actually deducing the equation which represents the conclusion from the equations which represent the premisses. Where Boole fails is in his attempt to deal with hypothetical inferences in the same way. In dealing with hypotheticals, he seeks once again to use equations to represent quite material premisses, such as "X is true" (where X may be not a law of logic but some quite ordinary proposition) and "If X is true then Y is true" (where this form of speech may represent not a rule of inference but some quite contingent fact such as "If I didn't plant those potatoes in the second row, I planted them in the fifth"). And he attempts to "justify" such an inference as

> If I didn't plant those potatoes in the second row,
> I planted them in the fifth;
> But I didn't plant them in the second row,
> Therefore I planted them in the fifth;

simply by deducing his equation for its conclusion from his equations for its premisses. But he fails to justify these inferences in this way, because the equations by which he claims to represent the premisses and conclusion do not really represent them, if the terms of these equations are interpreted according to his own instructions. For the equations assert not merely that the premisses and conclusion are true, but also—what is plainly not the case in the above example—that their falsehood is logically impossible. (This result arises simply from the fact that the "universe" to which propositions are equated in this "calculus of propositions" not merely exhausts all realities, as the "universe" of his "calculus of classes" does, but exhausts all possibilities). Purely material or logically contingent assertions cannot be expressed in this calculus by equations, but only by bare symbols—the assertion of X by the symbol x, the denial of X by the symbol "$1 - x$", the assertion of "If X then Y" (i.e., the denial of the conjunction of X with not-Y) by the symbol "$1 - x\ (1 - y)$", and so on. And since these are not equations, it is impossible to deduce equations from them. But there is an alternative way of "justifying" the inference of one such expression from another. The inference of a proposition B from another proposition A may be justified by showing that the proposition "If A then B" is logically necessary—that is, in Boole's symbolism, by showing that the "elective symbol" for it is equal to 1. Let A be, say, the conjunction of X with "If X then Y". Its elective symbol will be $x\ [1 - x\ (1 - y)]$, i.e., $x\ (1 - x + xy)$, or $x - xx + xxy$. By the fundamental law $xx = x$, the first part of this, $x - xx$, is equal to 0 and may be dropped, and the remaining expression, xxy, is equivalent to xy. Now let B be the proposition Y. Then "If A then B", or "Not both A and not B", will have for its elective symbol

$$1 - xy\ (1 - y),$$

that is

$$1 - xy + xyy.$$

But since $yy = y$, this amounts to

$$1 - xy + xy,$$

that is, to 1. Hence where A represents "If X then Y, and X", and B represents Y, "If A then B" is formally necessary, i.e., in this case B formally follows from A.

That Boole's treatment of hypotheticals cannot be subsumed under his treatment of categoricals if "$x = 1$" is interpreted as "X is true" and "$x = 0$" as "x is false", is further indicated by the fact that on this interpretation no meaning can be given to the statement that x has some value between 0 and 1; for there is nothing between false and true that a proposition can be, in the way that a class may be not empty, and yet not comprise everything in the universe. On the other hand, a proposition may very well be something in between self-contradictory and tautological, and in fact most propositions are (a larger or smaller number of the possibilities that make up the "hypothetical Universe" are possibilities of their truth, without all of them being so). Boole's failure to perceive the need for the form "$x > 0$" in his primary calculus of "elective symbols" no doubt helped to blind him to this defect in his application of it to the "hypothetical Universe".

There are further objections to which Boole's treatment of hypotheticals is open, and it is questionable whether he could have met all of them merely by making his approach consistent. Although no one was more anxious than he to establish an underlying identity between the logic of hypotheticals and the logic of categoricals, he was unable to give symbolic warrant to the many forms of valid inference in which we pass from one of these types of proposition to the other. We find him rightly anxious to distinguish between genuine "disjunctive and conditional Propositions" and "those in which the force of the disjunctive or conditional particle is expended upon the predicate of the Proposition, as if, speaking of the inhabitants of a particular island, we should say that they are all *either Europeans or Asiatics,* meaning that it is true of each individual that he is either a European or an Asiatic". Such a proposition is strictly speaking categorical; it expresses a relation between classes of individuals (saying that no individual is at once an inhabitant of the island and neither an Asiatic nor a European). Boole is not, of course, at this point endorsing the traditional view that where a categorical proposition has a disjunctive predicate, the disjunctive character of the predicate is of no interest to the formal logician—that is, the view that the only inferences using such propositions which Formal Logic can sanction are ones like "All B is D or E, and all A is B, therefore all A is D or E", in which "D or E" might just as well be replaced by a single symbol such as C; and not ones like "All A is D or E, and no B is D, therefore all AB is E", in which the expression of the first predicate as "D or E" is essential to the inference. On the contrary, one of the main purposes of Boole's calculus of elective symbols is to provide a single basic method of handling both the traditional syllogistic forms and more complex forms such as that just mentioned (which can be put into equations too). "All the inhabitants are either Europeans or Asiatics" is nevertheless "very different" from "the Proposition, Either all the inhabitants are Europeans, or they are all Asiatics. Here the disjunctive particle separates Propositions", and the symbolic representation of the disjunction would display it, not as an assertion that a certain conjunctively determined class has no members, but as an assertion that a certain conjunction of propositions is not true (p. 58). And again, "The Proposition, Every animal is *either* rational *or* irrational, cannot be resolved into *Either* every animal is rational, *or* every animal is irrational. The former belongs to pure categoricals, the latter to hypotheticals" (p. 59n.). By some logicians, propositions of such forms as "Every X is Y or Z" are called "complex" and those of such forms as "Either every X is Y or every X is Z" are called "compound". The hypotheticals equivalent to these disjunctions are respectively "Every X is Z if it is not Y", or "If any X is not Y it is Z", and in the other case, "If any X is not Y then every X is Z". Hypotheticals of the former sort are called by W. E. Johnson and J. N. Keynes "conditionals", the term "true hypothetical" being reserved for the latter. The "conditional" example is plainly equivalent to the categorical "Every X-that-is-not-Y is Z". But in both Boole's examples, although the inference from the implicitly categorical to the truly disjunctive form is invalid, the converse inference is not; so it seems highly implausible to treat the two propositions as having a totally different subject-matter, one as a proposition about Europeans, animals, future events, or whatever it might be, and the other as a proposition about propositions (or about the "cases" in which propositions would be true). And in the example about the animals, Boole himself goes on to admit that "In *singular* Propositions, such conversions would seem to be allowable. This animal is *either* rational *or* irrational, is equivalent to, *Either* this animal is rational, *or* it is irrational. This peculiarity of *singular* Propositions would almost justify our ranking them, though truly universals, in a separate class." By this "almost", Boole turns away from the light that he "almost" sees. There is no way of distinguishing universals from singulars in his system, and this blinds him to the true link between hypothetical propositions and categoricals, for it is out of singulars that first hypotheticals and then so-called categorical universals are built up.

So, at least, it may be argued; and is argued very persuasively by W. E. Johnson, in a series of articles on *The Logical Calculus* in *Mind,* 1892. Johnson's calculus is not just Boole's made consistent; but on the whole it is surprising how close to Boole he keeps, and I shall describe his system in some detail, as I do not know of any other in which essentially Boolean methods are carried quite so far. This system is in substance simply Boole's calculus of hypotheticals, with the symbolic notation slightly altered, and the interpretation simplified, in such a way as to make possible the treatment of the calculus of categoricals, not as the basis, but as an extension of it. (Johnson does to Boole, in fact, what Marx thought of himself as doing to Hegel.) The simplification of interpretation—one already achieved, in principle, in the earlier work of Hugh MacColl—consists in making the literal symbols represent, not selective operations on the truth-possibilities of propositions, but the propositions themselves. Thus x is just some *sentence* compressed into a single symbol. It is immaterial, for the purposes of the calculus, *what* sentence a given symbol represents, the aim of the system being to set out in symbolic form what is true of all propositions as propositions. The basic *relations* between propositions which enter into the system are conjunction and negation, and the innumerable complex equivalences which the system contains are all deduced from the following five:

(i) x and $x = x$
(ii) x and $y = y$ and x
(iii) x and (y and z) = (x and y) and z
(iv) not not-$x = x$
(v) not x = not both x and y, and not both x and not y.

The use of (iv) makes it possible to expand affirmative propositions as negative ones are expanded in (v). The combination "x or y" is defined by Johnson as "Not both not-x and not-y", and "If x then y" as "Not both x and not-y". "If x then y" in this sense expresses, of course, a merely "material" implication, so that while it may appear, like other compound propositions, as a premiss or conclusion of an inference, it does not state a formal *principle* according to which inferences may be made. "If x then y" in the sense of

"y formally follows from x", is in effect defined by Johnson as "x contains y as a conjunct, or is equivalent by the Five Rules to a proposition which does so", and is symbolised by "$x = \dots y$" (i.e., "$x = y$ and more").

Johnson's alteration of Boole's notation consists mainly in a "de-arithmetisation" of it. The numerical symbols 1 and 0, and addition and subtraction signs, are dispensed with. The negation of x is represented, not as "$1 - x$", but simply as an x with a bar over it (earlier symbolists had used this device too). In place of 1 and 0 there appear two "propositional constants", Truism and Falsism, which are represented by Greek letters, and are plainly equivalent to the modern "tautology" and "contradiction". Johnson proves that they have the same "propositional value" however they are constructed. (The Falsism "x and not-x" is shown to be equivalent to "y and not-y" because both are equivalent, by the Five Rules, to "Neither not-x and y, nor not-x and not-y, nor x and y, nor x and not-y".) *What* their "propositional values" are, is indicated by two rules which he also proves—the *Rule of Non-significance,* "x and Falsism = Falsism" (i.e., the conjunction of any proposition with a self-contradictory proposition is itself self-contradictory); and the *Rule of Insignificance,* "x and Truism = x" (i.e., the conjunction of any proposition with a tautology is equivalent to that proposition alone). These are like the algebraical laws $x\ (0) = 0$ and $x\ (1) = 1$; but Johnson points out that we might equally well represent conjunction by the addition sign, Truism by 0, and Falsism by Infinity; the two rules being then written as "x + Infinity = Infinity" and "$x + 0 = x$" respectively. In one way this notation is preferable to the other, as it reflects the fact that a man who utters a tautology safeguards himself from the possibility of falsehood by committing himself to nothing, while a man who utters a self-contradiction is always wrong because he attempts to assert *everything* ("x is true and not-x is true as well"). But Johnson deliberately avoids the use of numerical symbols, as he wishes to avoid the suggestion that such rules as those of Non-significance and Insignificance may be established by first using numbers to represent their terms, and then taking it for granted that the laws of numerical algebra will apply to them. As rules about the manipulation of *propositions*, they are established by deduction from the five axioms laid down for this process. ("x and Falsism = Falsism" follows from the fact that, since every self-contradictory proposition has been shown to have the same "propositional value", any given one is equivalent to "x and not-x", so that we are always entitled to equate "x and Falsism" to "x and x and not-x", and since "x and x" is equivalent to x, "x and x and not-x" is equivalent to "x and not-x" simply, i.e., to Falsism.) Johnson's two constants, like Boole's 1 and 0 when appropriately interpreted, suggest an alternative way of expressing the formal implication of y by x, namely by equating the material implication of y by x to Truism.

The remainder of this calculus consists simply in the application to propositions which have been analysed into subject and predicate of the laws which have been shown to hold good of propositions whether they are analysed into subject and predicate or not. In order to make this possible, propositions with complex subjects and predicates are treated as abbreviated combinations of more elementary propositions. Thus a proposition of the form "This is both X and Y" is treated as an abbreviation of "This is X, and it is Y". The formal equivalences which Boole establishes between various combinations of his "elective symbols" are easily translatable by this means into equivalences between propositions. Thus Boole's "$xx = x$", which for him meant that the selection of the Xs from the Xs has the same result as the selection of the Xs from the universe, is read as a rule to the effect that when we say of any object that it is both X and X, we say the same of it as we do in saying that it is X: that is, to say "This is X, and it is X" is the same as to say "This is X", and this is only a special case of "$xx = x$" in Johnson's sense of this formula.

Propositions of the form "This and that are both X" are similarly treated as abbreviated versions of "This is X and that is X"; and—here we come to the important development—universal categoricals are treated as abbreviations for infinitely long conjunctions of disjunctives and hypotheticals, in which the components have common subjects and predicates at the right places. Thus "All X is Y" or "If anything is X it is Y" is identified with the conjunction "If this is X it is Y and if that is X it is Y and if that other is X it is Y", and so on through all the subjects in the Universe. Here, it will be observed, in each hypothetical the consequent has the same subject as the antecedent, while this subject differs from one hypothetical to another; but the antecedents of all the hypotheticals have the same predicate X, and the consequents all have the same predicate Y. Particulars are treated as long alternations of conjunctions in which common predicates appear. Thus "Some X is not Y" becomes "Either this is X and it is not Y, or that is X and it is not Y", and so on. The rules governing the relations between such propositions—e.g., that universal affirmatives are contradicted by particular negatives—are simply applications of the rules governing conjunctions, alternations, etc., such rules being unaffected by the fact that the conjuncts, alternants, etc., have common predicates, this fact merely being the basis of convenient abbreviations. Such propositions as "Either all X is Y or all X is Z" simply continue the same basic processes of synthesis, the rules of which remain the same throughout, and fully account for such formal implications as that of "All X is Y or Z" by the disjunction of universals just given.[2]

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[2] In his *Logic*, Johnson deals with propositions of the form "Either all X is Y or all X is Z" under the head of "Demonstrative Induction", and such propositions are in fact involved in the use of "crucial instances" to establish a scientific law. The conjunction of such a proposition with one of the form "This X is not Y" enables us to infer "All X is Z"; though the conjunction of "This X is not Y" with "All X is either Y or Z" only enables us to infer "This X is Z". (This is noted also by Keynes, *Formal Logic*, p. 360.)

"Multiply-quantified" propositions, such as "Every A has the relation R to some B", lend themselves to similar treatment; and Johnson shows how the laws earlier worked out for such propositions by the American logician Mitchell are simply remote developments of his own five rules for conjunction and negation. The example given may mean either "Of every A it is true that it is R to some B" or "Of some B it is true that every A is R to it" (e.g., "All of the people can be fooled some of the time" may mean either "Of every person it is true that he can sometimes be fooled", or "Of some times it is true that these are times at which everyone can be fooled"). The former expands to "This A is R to some B and that A is R to some B, etc.", and the latter to "Either every A is R to this B or every A is R to that B, etc." The former is related to the latter in much the same way as "All X is Y or Z" is related to "Either all X is Y or all X is Z"; for the former means "All A is either R-to-this-B or R-to-that-B or R-to-that-other-B, etc.", while the latter means "Either all A is R-to-this-B or all A is R-to-that-B or all A is R-to-that-other-B, etc."; and the latter implies the former (if there are times of which it is true that you can then fool everyone, then it is true of every person that you can fool him at some times, for you can at least fool him at those times at which you can fool all men together).

There are other directions too in which this system is capable of being extended. It may be made to cover, for example, the "functional" propositions and inferences which Johnson discusses, not in *The Logical Calculus,* but in his much later *Logic* (Part II, Ch. V.), hinting at them also towards the end of his two articles on *The Analysis of Thinking* in *Mind,* 1918. He points out in the latter place, in effect, that when a scientist has surmised that all X is Y, but is driven by further observation to admit that some X is Y and some is not, he seeks to replace this indefinite proposition, as soon as his information warrants it, by one of the form "All XA is Y, and all X that is not A is not Y". (One of the deficiencies of Boole's interpretation of "Some" is that it does not make clear the advance which is made when this step is taken.) But "not A" and "not Y" are also indefinite. "All X that is not A is not Y" only tells us that any X that has *some* character that is incompatible with A has *some* character that is incompatible with Y; and the scientist's next task is to determine *what* these characters are in various cases, thus transforming his information into something like "All XA is Y and all XB is Z and all XC is W", and so on. If A, B, C, etc., are all qualities of the same sort (in the sense in which 2 c.c., 3 c.c. and 4 c.c. are all qualities of the same sort, namely volumes), and X, Y, Z, etc., are also qualities of a single sort, the process will not be complete until we have a new universal about all Xs whatever, to the effect that every X, whatever be its additional characteristic of the A, B, C, sort, has a characteristic of the X, Y, Z, sort which stands to its characteristic of the A, B, C, sort in some constant relation (e.g., that its volume is always the same multiple of its temperature, measured in appropriate units). Let M be one determinable sort of quality, comprising the determinate qualities *m*1, *m*2, *m*3, etc.; and let P be another determinable sort of quality. Then the proposition "Whatever quality-of-the-M-sort any object possesses, its quality-of-the-P-sort is the function F of its quality-of-the-M-sort" amounts to a long conjunction of propositions of the form "If any object is *m*1, its quality-of-the-P-sort is F (*m*1)", "If any object is *m*2, its quality-of-the-P-sort is F (*m*2)", and so on through all the qualities of the M sort there are; and each of these in turn is a conjunction of propositions of the form "If this is *m*1, its quality-of-the-P-sort is F (*m*1)", "If that is *m* 1, its quality-of-the-P-sort is F (*m* 1)", "If that other is *m* 1, etc.", etc. Perhaps the most interesting logical exercise to which these functional universals lend themselves is the tracing of such implications as a group of them may have in common with one another and perhaps also with some ordinary universals. (If their common implications are true, they constitute alternative possible "explanations" of those truths.) Thus the proposition "The volume of a gramme of oxygen at 100 units-of-temperature is twice 100 units-of-volume" follows equally from "The volume of a gramme of oxygen at any temperature is twice 100 units-of-volume" and from "The volume of a gramme of oxygen at any temperature is, in units-of-volume, twice its temperature, in units-of-temperature"; of which two possible premisses the second is a functional universal while the first is not. The Johnsonian expansion of these premisses would reveal the expansion of their common implicate as a common conjunct. (There are obvious resemblances between the Johnsonian expansions of functional universals and multiply-quantified ones, and I think the former may be so represented as to appear as a sub-class of the latter, as the latter in turn may be represented as a sub-class of conjunctions and disjunctions of singly-quantified categoricals. The functional proposition just given could be re-stated as "No number is the number of units in the volume without being twice the number of units in the temperature of any specimen of oxygen of a mass of one gramme", which is a proposition of the form "No A has the relation R to any B".)

Singly- and multiply-quantified categoricals; universals, particulars and singulars; hypotheticals, disjunctives and conjunctives with antecedents, consequents, disjuncts and conjuncts of all kinds—all alike, in Johnson's system as in Boole's, presuppose a "universe" of real subjects of which propositions may make their various predications; but, again as in Boole's system, not every proposition asserts that the description connoted by its explicit subject-term has any real objects answering to it. "No S is P", or "Nothing is both S and P", or "This is not both S and P, and that is not both S and P, and that other is not both S and P, etc., etc.", presupposes that there are real thisses and thats, and asserts of every one of them that it is not both S and P, but does not assert of any of them that it is S. On the other hand (and here

Johnson departs from Boole and follows Venn), "Some S is P", or "Something is both S and P", in asserting that at least one of all these thisses and thats is both S and P, does *ipso facto* assert that at least one of them is S. The singular proposition "This is S" is of course meaningless if "This" denotes nothing, and the more complicated forms into which singulars may be built up are meaningless if their component singulars are.

This calculus of Johnson's goes further than any earlier one, and perhaps further than any later one, towards solving the problem of incorporating hypothetical and categorical propositions and inferences in a single deductive system. At the same time, Johnson's solution of this problem undoubtedly raises new problems of its own. It cannot, indeed, be fairly urged against it that, since it involves the treatment of "All men are mortal" as a conjunction of singulars, it makes it possible to infer "Socrates is mortal" from "All men are mortal" alone, without the aid of a minor premiss. Johnson is free from Mill's confusions here. For although "All men are mortal" does, on his view, contain as a conjunct an assertion about Socrates, it does not contain the assertion that he is mortal, but only the assertion that he is "mortal-if-human", i.e., that he is not both human and not mortal; and this much it says not only of Socrates but of my front door-knob. And whether or not it be admitted that "All men are mortal" contains "If Socrates is a man he is mortal" as a conjunct, it must be admitted that the inference of the latter from the former alone is a valid one. So, for that matter, is the inference from "Socrates is a man" of "Socrates is mortal if all men are". (Immediate inferences of this type, as I have noted elsewhere, were discussed in the seventeenth century *Port-Royal Logic.*) It remains difficult, nevertheless, to see how we can ever understand the proposition "All men are mortal" if it is equivalent to a conjunction of assertions about subjects which are supposed to be directly denoted, referred to as "this" and "that", and yet with the vast majority of which we are totally unacquainted. It is awkward, too—though this is just another aspect of the same basic awkwardness—that the conjunction to which "All men are mortal" is on this theory equivalent, is one which cannot possibly be expressed in its completeness *as* a conjunction. Hence the late F. P. Ramsey dismissed this interpretation with the comment, "What we can't say we can't say, and we can't whistle it either" (*Foundations of Mathematics,* p. 238. This is presumably a paraphrase of the last sentence of Wittgenstein's *Tractatus Logico-Philosophicus.*) It is plain that if Boole's way of relating categoricals and hypotheticals has its disadvantages, so has this one.

Johnson's adaptation of the Boolean logical calculus, whatever its merits and defects, has been put quite in the background in the present century by a calculus which is at least in its superficial appearance very different from it, and which has acquired its present prestige through its being the form in which Russell expressed the purely logical premisses from which he and Whitehead deduced the principles of the science of number and quantity. This achievement, of course, justifies Johnson and others among Boole's more immediate successors who deprecated the tendency of some symbolists to regard the laws of numerical algebra as the foundation of those of logic. Russell is also like Johnson in making his "calculus of propositions" the basis of the rest. But in passing from this to his "calculus of classes"—from his logic of categoricals to his logic of hypotheticals—he introduces what may appear to be a new notion, that of a "propositional function". It may also appear that this notion enables us to avoid the problems raised by Johnson's treatment of categoricals; but this appearance is to my mind quite delusive. By a "propositional function" Russell means an incomplete proposition, something which is in itself neither true nor false, but which may be "true of" this or that subject. It may, for example, be "true of Socrates" that he is dead; " . . . is dead" is a propositional function. The propositional function is, I think, just the old-fashioned "predicate", with the copula treated as an indistinguishable part of it. And on Russell's view, the difference between what Johnson and Keynes call "true hypotheticals" and what they call "conditionals", is that the former express relations of "material implication" between complete propositions, while the latter (which are reducible to categoricals) express relations of "formal implication" between propositional functions. "All X is Y", or "If anything is X it is Y", means that the propositional function ". . . is X" "formally implies" the propositional function ". . . is Y". But what Russell means by "formal implication" is not what Johnson or any other earlier writer means by it. It does not turn "All X is Y" into a rule of formal inference; it does not even express some non-logical but still necessary connection between "being X" and "being Y" as such. (The latter is, indeed, even further from Russell's interpretation of "All X is Y" than it is from Johnson's; for Johnson does admit that there *are* such necessary connections between predicates, and that the perception of one between X and Y would be a legitimate "ground" for affirming that all X is Y; though he denies that "X necessitates Y" is the "meaning" of "All X is Y", and is compelled in his calculus to treat the inference of the latter from the former as "non-formal", i.e., as incapable of being certified by the rules of the calculus.) All that Russell means by saying that the propositional function ". . . is X" formally implies the function ". . . is Y", is that it is true of every subject that its being X (i.e., the proposition that it is X) *materially* implies its being Y. It means that there is in fact no subject of which we can truly say that it is X without being Y.

In Russell's definition of "formal implication", what can his "Every subject" be but Johnson's "this and that and the other thing" all over again? For if "Being X formally implies being Y" is taken to mean "It is true of every subject that its being X materially implies its being Y", we cannot without circularity treat the word "subject" as a description, and equate the last-mentioned statement to "The conjunction of being-a-subject with being-X formally implies being-Y". And if the word "subject" is not a description, then "This is a subject", or (to eliminate any suggestion that "subject" as here used is a description of a *word*) "This is a thing", can only mean "This is this"; and so "It is true of every subject . . ." can only mean "It is true of this and it is true of that and it is true of that other" and so on. We might perhaps escape from this dilemma by holding that beside connotative or descriptive names like "man" and "mortal", and purely denotative names like "This" and perhaps "Socrates", there is a third class which might be called "categorial" (of which "subject" or "thing" would be typical), such that we can understand the meaning of "Every M" (where M is a categorial name) without being acquainted with every M, even though "Every M" does not mean "Everything that is *m*" (where *m* is a descriptive predication; or in Russell's terminology, where ". . . is *m*" is a propositional function). There is a suggestion of this solution in Johnson's *Logic,* II, i.

The most serious defect in Russell's system is, of course, his identification of the distinction between formal and non-formal implications with that between one kind of non-formal implication and another. Logicians have not been slow to point this out—the classical criticism is Moore's, in his Aristotelian Society paper on *External and Internal Relations* —and the most interesting of the attempts that have been made to remedy the defect is perhaps that of Wittgenstein, in his *Tractatus Logico-Philosophicus.* Here a formal implication—the sort which holds between x and y when y is a logical consequence of x—is defined as one which may be shown by truth-tables to be tautological—i.e., verified by all "truth-possibilities". Although there are no indications in the *Tractatus* of any indebtedness to Johnson, many of its tantalising aphorisms about Tautology and Contradiction are reminiscent of the latter's more sober demonstrations of the properties of Truism and Falsism. "The propositions of logic demonstrate the logical properties of propositions, by combining them into propositions which say nothing" (*Tractatus,* 6.121). "All propositions of logic say the same thing. That is, nothing" (5.43). For "the logical product of a tautology and a proposition says the same as the proposition" (4.465). "Tautology leaves to reality the whole infinite logical space; contradiction fills the whole logical space and leaves no point to reality" (4.463). "Contradiction vanishes so to speak outside, tautology inside all propositions. Contradiction is the external limit of the propositions, tautology their substanceless centre" (5.143). And Wittgenstein's definition of a proposition as that which agrees with every member of a certain selection from the totality of "truth-possibilities" and disagrees with all the rest (tautologies agreeing with all truth-possibilities and contradictions with none), suggests an answer to one question which Johnson's system raises, namely the question as to the sense in which "not not-x" is "equivalent" to x, "not x" to "not both x and y, and not both x and not-y", etc. "Although a proposition may only determine one place in logical space, the whole logical space must already be given by it" (3.42). "One could say, the denial is already related to the logical place determined by the proposition that is denied. The denying proposition determines a logical place *other* than does the proposition denied. The denying proposition determines a logical place, with the help of the logical place of the proposition denied, by saying that it lies outside the latter place" (4.0641). "Every proposition has only one negative, because there is only one proposition which lies altogether outside it" (5.513). Wittgenstein also makes explicit a curious assumption that seems to be implicit in Johnson's system as well as in his own, namely the assumption that "any imaginable world must contain all the objects in the real world" (2.022, 2.023, as paraphrased by F. P. Ramsey, *Foundations of Mathematics,* p. 285). For if the "universe" presupposed by all significant statements can only be described as that which would be referred to by an enumeration of purely denotative terms—"This, that and the other thing"—then the supposition of its non-existence is meaningless, since "This does not exist" is meaningless if "This" is purely denotative; and the supposition of the existence of a numerically different universe is equally meaningless, for this supposition can only be fully expressed as the supposition of a universe "which contained That instead of This, etc.", where "That", being a purely denotative term, either directs us to an object in the *real* universe or means nothing at all. Broad seems to reach substantially the same conclusion in his *Examination of McTaggart's Philosophy,* Vol. I, Ch. XIV. Perhaps the notion of "categorial" subjects leads us out of this difficulty as well as the connected one mentioned earlier.

It has already been pointed out that Wittgenstein's notion of "logical space" or the totality of "truth-possibilities" is a resuscitation of Boole's notion of the "hypothetical Universe". (The influence of Boole on Wittgenstein was mediated through Gottlob Frege, who seems to have originated the device of "truth-tables", and whose *Sinn und Bedeutung* appeared in Germany at the same time as Johnson's *Logical Calculus* did in Britain.) And since, in Boole, this notion is a device for bringing his propositional calculus under his class calculus as a particular application of it, are we to conclude that Wittgenstein's work involves a reversal of the change which Johnson and Russell effected in Boole's system at this point (I mean the change which consists in making the propositional calculus the basis of the other)? This is certainly not what Wittgenstein intended, but it is a possible consequence of his approach (or of his former approach—for he is now said to have abandoned much in the *Tractatus*) which is worth investigating. One point that is bound up with it is the relation, in his system, between the notion of "tautologousness" (which belongs to the calculus of propositions) and that of generality (which belongs to the calculus of classes). As we have seen, Wittgenstein rejects Russell's definition of a formal implication as a material implication which may be truly asserted of all subjects. "The mark of logical propositions is not their general validity. To be general is only to be accidentally valid for all things. An ungeneralised proposition can be tautologous just as well as a generalised one" (*Tractatus*, 6.1231). But if the statement that "This either is or is not red" is tautologous, merely means that it agrees with all truth-possibilities, is not this reducing its "tautologousness" to a kind of generality, even though it is itself a singular proposition? Allied with this is the question, Is the assumption that truth-possibilities when listed in accordance with Wittgenstein's method are mutually exclusive, and collectively exhaustive of "logical space", itself a tautology or not? It cannot without circularity be shown to be so by truth-tables· so it seems to me that if Wittgenstein is right in contending that "there is no necessity but logical necessity" (6.37) and that outside logic all is accident, we must hold that inside logic—as Wittgenstein delimits logic—all is accident too. And conversely, if there is logical or formal necessity, definable as agreement with all truth-possibilities and disagreement with none, there must also be a "pre-logical" or "pre-formal" necessity limiting the truth-possibilities to those which appear in a list constructed by Wittgenstein's dichotomous method—a necessity that every proposition should be either true or false, and none both, that the conjunction of a false proposition with any proposition should itself be false, etc. The substance of this criticism of Wittgenstein was made by J. Chadwick in an article on *Logical Constants* in *Mind,* 1927; but Boole himself knew that the applicability of his calculus of "elective symbols" to the universe of truth-possibilities involved certain pre-formal assumptions. For at the point where he admits that his treatment of categoricals presupposes "that there *is* a Universe of conceptions, and that each individual it contains either belongs to a proposed class or does not", he adds that his treatment of hypotheticals similarly presupposes "that there is a Universe of conceivable cases, and that any given Proposition is either true or false". Boole, like all logicians, made his mistakes; but he had, on the whole, a remarkably clear idea of what he was about.

THE LOGICAL STATUS OF GRAMMAR RULES

By John Mackie

In this article I shall be using the phrase "grammar rules" (or "rules of grammar") to refer to rules about the formal features, the morphology and syntax, of natural languages, and also, since these formal features cannot be sharply cut off from meanings, to rules about the meaning of words, phrases, and sentences in such languages. I shall not be concerned with the grammar of artificial languages or with phonology or pronunciation (though this is often included in grammar) since the rules about pronunciation seem to require a rather different treatment from grammar rules in my sense.

It is important to investigate the logical status of such rules for at least two reasons. First, the belief in normative sciences, which are sometimes said to include ethics, political philosophy, and law, is often supported and illustrated by the example of grammar. Grammar, it is said, is a normative science; therefore normative sciences exist; therefore ethics can be a normative science. Such a view can be opposed on general logical grounds, but this criticism may fail to carry conviction unless it is supported by a direct examination of the things claimed to be normative sciences. It will be important, then, to examine grammar more closely, to see where it is normative, where scientific, and how the combination of these aspects makes plausible its description as a normative science. And, secondly, some contemporary philosophers are inclined to substitute grammar for logic, to say that what have previously been regarded as logical features and distinctions in things are really only grammatical characteristics of the language used to describe things: our present investigation would seem appropriate as a preliminary or adjunct to the discussion of this suggestion.

It is interesting to find that while some philosophers are paying such respect to grammar, some linguistic theorists have been treating it almost with contempt. F. de Saussure dismisses grammar as a first fumbling attempt at a science of language. "This study", he says, "is founded on logic and lacks entirely a scientific and disinterested view of language itself; it aims solely at giving rules for distinguishing correct from incorrect forms; it is a normative discipline, far removed from pure observation, with an extremely narrow point of view."(1) On the other hand Henry Sweet(2) and Jespersen(3) both seem to regard grammar as a positive science, concerned with the formal description of a language. Again Bloomfield(4) speaks disparagingly of authoritarian or normative grammar, but elsewhere speaks of grammars, such as the ancient Sanskrit grammar of Panini, which present "a complete and accurate description of a language, based not on theory but on observation".(5)

This contrast of opinions brings out the first main issue of this article: is a rule of grammar an expression of demand or a statement of fact?

The first step towards a solution of this problem is to observe that some grammar rules state facts about some usage. The rule that in Latin the noun or pronoun governed by the preposition *pro* is in the ablative case is, I imagine, true of all the writings of Cicero, Caesar, and a number of other classical authors.

But on the other hand it is equally true that any grammatical rule is at times violated by usage. In at least one late Latin inscription *pro* governs a noun in the accusative case, and it is probable that long before this time, even in the age of Cicero, a child or a slave occasionally spoke Latin in this "ungrammatical" way. The rules of grammar, then, are not simply descriptions of usage.

Perhaps the solution is that grammar is a description of correct usage only. But as this stands, it seems circular. The most obvious way of distinguishing correct from incorrect usage is to apply the test of conformity to the rules of grammar. In Latin we could perhaps pick out a small number of classical authors and define as correct the forms that they use, but in other languages, such as English, this will hardly do. Even the best educated speakers, the most careful writers, are occasionally guilty of mistakes in grammar, of usages which they themselves, as well as the grammarians, would on reconsideration recognise as incorrect.

However, it is plain that there are in language, as in other social fields, conventional forms of behaviour. Within any effective speech community there are ways of speaking that most speakers follow most of the time: there are partial uniformities of linguistic behaviour. Besides this, in such a community there are pressures in the direction of more complete uniformities: the ways of speaking which are most commonly used are favoured, and the uncommon ones are disfavoured. That is to say, the linguistic behaviour includes not only habits, but also demands and strivings which support these habits—and of course there are also forces which oppose these, which tend to produce irregularities. In view of these phenomena, we might define correct usage within any given speech community in terms of these partial uniformities and the strivings to make them more complete. If we then defined grammar as a formal description of correct usage in this sense, the definition would at least be not circular.

This account, however, is only a first approximation to the truth. It treats the speech community as uniform, and assumes that on any single point of linguistic behaviour there is only one habit, that whatever violates this habit is a mere irregularity. But no actual community is like this. Every actual community is composed of groups, higher and lower social classes, adults and children, and so on, and each group tends to have distinctive speech-habits of its own. Now there will be a tendency to regard as correct the usage characteristic of the group with the most prestige. Again, in any language that acquires a literature, there tends to develop a distinct literary usage, which in general will be based on the usage of the group with the highest social prestige. This literary usage reacts on the spoken language, increasing the differentiation within it, as the members of the higher social groups will in general receive the most literary education. As a result of such processes as these, there develops a kind of hierarchy of usages, at the top of which is the usage of the best educated and most careful writers. Now correct usage is not simply the most common usage within a linguistic community, it is the upper limit of this hierarchy of usages. However, if we use the hierarchy to distinguish literary from non-literary usage we can define correct usage in terms of the partial uniformities within literary usage, and we note that as before there are strivings to make these partial uniformities more complete. And, of course, there are also strivings to make usage generally, including speech, conform more closely to literary usage, while again there are strivings that conflict with these, tendencies to preserve and extend the partial uniformities of spoken as opposed to written language, in particular the forms of slang and local dialects. It is to be noted that when we have thus introduced the complicating factor of literary usage, we can still without circularity define grammar as a formal description of correct usage, for although the education which distinguishes the more from the less educated will include the teaching of grammar, and although the care which distinguishes the more from the less careful will include attention to the known rules of grammar, the ordering of the hierarchy and the distinction between literary and non-literary usage does not depend on the criterion of grammatical correctness.

In this way we can give an account of grammar as a purely descriptive science. But it must be emphasized that the existence of the usage it describes is maintained by a variety of demands and strivings, and that these are part of the linguistic behaviour of ordinary speakers and writers. Not only grammarians but many quite ordinary people strive after the "grammatical" forms and tend to avoid and check the "ungrammatical" ones. And this is not only a conscious striving after correctness, a desire to be regarded as a correct speaker or writer, it is also a direct striving after the correct forms themselves and a tendency to react unfavourably to the incorrect forms. Many people, for example, simply prefer "isn't" to "ain't", and this preference is over and above their belief that "isn't" is correct and "ain't" incorrect.

We might say, then, that grammar describes the established linguistic *mores* of an effective linguistic community. By putting it in this way we can bring out the parallels between this and other fields of social behaviour. The striving to make partial uniformities in conduct more complete is sometimes called "moralism", and it is interesting to note that people who consciously reject moralism about conduct sometimes exhibit, perhaps by way of compensation, a particularly keen moralism about language. In general, people react in a similar way, though in varying degrees, to ungrammatical usages and to violations of the current moral code. (This has some bearing on ethical theory: if moral approval and disapproval, or attitudes very similar to them, are found in the linguistic field, Anderson's treatment of approval as a combination of demand with a confused recognition of ethical good(6) becomes less plausible.) We have already noted how there may be conflicts between linguistic *mores*, just as there are conflicts between other moral codes within a society: it is also to be observed that linguistic *mores* interact with other social tendencies. Social climbing will support the linguistic standards of what is taken to be the higher social class, provincialism will support local linguistic standards, while a shift in the relative prestige of social groups may disturb the linguistic hierarchy.

The question arises at this point whether this linguistic moralism, this tendency to promote uniformity of linguistic behaviour within a communicating group, is to be explained by a practical need for uniformity for the sake of communication. Now it is true that some degree of uniformity is necessary for communication, and that a desire to communicate sometimes promotes uniformity—as, for example, an American in England may have to drop some forms of expression in order to make himself understood. But the striving for uniformity goes far beyond the necessities of communication. In educated circles the use of "it ain't" will be understood without difficulty but is still likely to meet with disfavour. The same phenomenon can be observed in the closely related field of pronunciation. An Australian accent will be regarded with disfavour in Cambridge, and this disfavour may communicate itself even to the speaker. So the speech of an Australian student in Cambridge gradually loses its most distinctively Australian features, and this is due partly at least to his sometimes conscious, sometimes unconscious avoidance of what he now perceives as irregularities. Yet these features were never an obstacle to communication. In general, then, linguistic moralism must be taken as a distinct tendency in its own right, and cannot be explained away by the desire to communicate.

While some demands, some insistence on standards, are thus part of linguistic behaviour, there are other demands which are made simply by the grammarians. Grammarians, that is to say, have at times attempted to improve even upon what we have called correct usage. This is the kind of grammar "based on logic" to which de Saussure and Bloomfield object. It will be found, however, that these demands are, in general, based not on logic but upon a desire for greater neatness, increased systematisation. For example, the words "further" and "farther" are etymologically mere variants of one another, and their usages overlap at all points.(7) But some grammarians lay down a rule that "further" is the adjective and "farther" the adverb. Here we have two words, they say, let us make a distinction between them. Similarly Fowler(8) is not describing usage but recommending an improvement in it when he suggests that the spelling "spirt" should be kept for the meaning gush, jet, or flow (as either verb or noun) and that "spurt" should be kept for the meaning sprint, burst, hustle (as either verb or noun). This sort of activity, while it is commonly engaged in by grammarians, clearly forms no part of the science of grammar, and these suggestions must be sharply distinguished from the grammar rules whose status we are discussing. In practice it may be hard to make this distinction. Along with systematisation, and often linked with it, there may be the motive of increasing precision and clarity. But this same motive may also lead to support for correct usage in our sense: by a kind of Gresham's Law the meaning of words in colloquial use tends to become weaker and distinctions tend to be lost, so that the literary usage is often more precise than usages lower down in the hierarchy. Thus support for correct, i.e., literary, usage and an attempt to improve on usage as a whole may work in much the same way and may be determined by the same motive, and can therefore very readily be confused with one another. But a criterion is always available: if a supposed "rule" is obeyed in general by literary usage, then it is a rule in our sense, if not, it must be a grammarian's demand or suggestion, or perhaps something that was once a rule, but is so no longer.

But here a complication arises: a grammarian's suggestion may in time be adopted, and it then becomes a rule of grammar in our sense. Thus the distinction between the uses of "shall" and "will", which Bloomfield(9) condemns as a fanciful rule originating in the normative grammars of the eighteenth century, has surely become a feature of literary usage—Bloomfield himself, for example, seems to observe it.

These attempts of grammarians to improve on usage may be compared with the kind of analytical jurisprudence which

Hutley(10) describes as the ideology of the expert legal scholar —something that purports to be an account of the law, but is in fact clearer, more precise, and more systematic than the law that the courts enforce. This has similarly been miscalled a critique of law in terms of "logic".

It follows from what we have said that while grammar is a descriptive science, it describes only a part or an aspect of usage. But it seems that the only way to describe a language is by way of its grammar—or its grammars. In describing modern English we should start with its grammar in our sense, that is to say, with an account of its correct literary usage, and then go on to indicate any differences between this and educated speech, and continue with accounts of the divergences from the literary standards in various jargons (such as "journalese") and in slang and dialect forms. In other words, we can describe language only by describing the various competing standards of linguistic behaviour. Bloomfield recognises this when he says(11) that instead of making a statistical survey of linguistic behaviour the linguist can and does study conventional actions, and adds that in no other respect are the activities of a group so rigidly standardised as in the forms of language.

In answer to our question, then, whether a rule of grammar is an expression of demand or a statement of fact, we may conclude that while some so-called rules express demands or recommendations of grammarians, the true rules of grammar are statements of fact, namely descriptions of correct usage in the sense explained above. But corresponding to each of these rules is a demand or striving, a tendency embedded in the linguistic behaviour to make a partial uniformity more complete.

We have spoken of linguistic *mores*: the word "norm" seems to be used (when it is not merely equivalent to "demand" or "prescription") to refer to the standard supported by a *mos*. In this sense we could say that grammar investigates linguistic norms—though this would be misleading if it suggested that a norm exists on its own, apart from the social activity that supports it. We could then call grammar a normative science in this special sense, of a science that investigates norms; but this is very different from saying that it is normative in the sense of itself making demands or prescriptions, though no doubt the latter view is sometimes supported by a confused recognition of the former, as well as by the fact that grammarians sometimes confuse their science with their recommendations. It now appears, however, that the linguists to whom we referred earlier are all somewhat misleading, Sweet and Jespersen in that they fail to emphasize the demands connected with the material described by grammar, Bloomfield and de Saussure in that they make too sharp a division between the bad or merely practical normative grammar and the scientific description of language.

The second main question that I want to consider in this article is whether a rule of grammar, or a system of such rules, is a true description or an arbitrary construction. Granted, that is to say, the distinction between correct and incorrect usage, just how are the rules of grammar related to correct usage? Can a linguistic scientist simply observe the rules, or does he only observe the whole array of particular correct and incorrect usages, and then try to invent rules that will justify the correct usages and exclude the incorrect ones? Part of the preceding discussion has anticipated an answer to this question, but I want to raise the whole issue afresh.

There is some evidence in favour of the view that grammar rules are arbitrary constructions. In the first place, it is far easier for most well-educated and normally correct speakers and writers to tell whether a certain usage is correct than to say what rule it falls under or offends against. For example, many people would feel that there is something wrong with the sentence, "no sooner had the ship sailed when I started to feel sick", and yet be unable to say what the fault is. Again, though it is a disputed point, many people would feel that it is correct to say "it never rains without the ground getting wet" and yet would be unable to justify this usage by grammatical analysis.

A second argument for the arbitrary construction view is that, at least in English, there are many correct usages that don't fit very well into any place in any grammatical system, so that a number of different treatments are proposed, each of which gets over some difficulties but is still faced with others. Consider, for example, the word "as" in the following four sentences:

(a) He spoke as he intended.
(b) Such measures as were taken then will always be ineffective.
(c) Such measures as were taken were ineffective.
(d) This is the book as I bought.

Of these, (a), (b), and (c) are of course correct, while (d) is incorrect. In (a), "as" seems to be a subordinating conjunction which introduces an adverbial clause modifying "spoke". If we say that "as" is always either an adverb or a conjunction, we can explain why (d) is incorrect, since "as" there replaces the relative pronoun "that" or "which". But then what about (b) and (c)? In each of these the subordinate clause could be an adverbial clause modifying "such", but where is the subject of the verb "were taken"? No noun or pronoun can be "understood", since none can be inserted without making the usages incorrect. If we retain the rule that a finite verb must have a subject, then "as" must be the subject, and is therefore, presumably, a relative pronoun. But then, why is (d) incorrect? We might say that the relative pronoun is the phrase "such . . . as", but "such" is clearly an adjective, not part of a pronoun, and in any case there are other sentences like "cats, as is well known, are fond of fish", in which "as" seems to be a pronoun without the help of a "such" or a "same". Another difficulty is that if "as" in (b) and (c) is a relative pronoun, its antecedent is "measures", and the close association in meaning between "such" and "as" is not grammatically recorded. And, finally, in (b) and in many similar usages, though not in (c), the subjects of the two clauses refer to different things, whereas a relative pronoun and its antecedent normally refer to the same thing.

It is, then, equally unsatisfactory to treat "as" as a conjunction and as a relative pronoun. The conclusion suggested is that the so-called rules involved in these treatments are arbitrary constructions: the fact that the framework creaks shows that it is a mere framework.

A third argument in support of the same conclusion is that the rules are tautologous. For example, grammarians state the rule that a relative pronoun must have an antecedent, and then save this rule by declining to call anything a relative pronoun unless something else is simultaneously called its antecedent. Similarly it may be argued that in Latin the rule that the preposition *pro* governs the ablative case is tautologous, since we decide that something is the ablative case, even if it has the same form as a nominative or a dative, as soon as we note that it is governed by *pro*.

In reply, we may first point out that the second and third of these arguments are mutually inconsistent. A system of tautologies cannot get into difficulties. But in any case the third argument will not stand up to examination. We can determine the form of the ablative case of any noun in Latin not only by observing it when governed by *pro*, but also by observing it when governed by *a*, *de*, etc., when in the ablative absolute construction, and so on. It is a matter of observable fact that a noun has the same form when governed by *pro* as it has when governed by *a* or *de* or when joined with a participle in the absolute construction, and that this form is not for all nouns the same as the form which it has when it is the subject of a verb, and so on. The mere name, "ablative case", may in a sense be arbitrary, but it refers to a distinct group of linguistic facts. Similarly in English there is a distinct group of linguistic facts, each of which includes a pair of words, which we call relative pronoun and antecedent, with certain constant relations of meaning and form (such as having the same number) between the two members of each pair.

Nor will the first argument survive a close examination. Unless we take the extreme conventionalist view of language, that it possesses no characteristics beyond those which its speakers decide to give it, there is nothing surprising in the existence of rules that are not known even to correct users. And this extreme conventionalist view, maintaining, for example, that words mean just whatever we want them to mean, is simply not true of any natural language and any actual group of its speakers.

The only serious argument, then, for the view that a rule of grammar is an arbitrary construction, is the second one, the argument from the unsatisfactory character of many proposed grammatical systems.

But to what precise conclusion does this argument lead? Not that any system of rules will do, since its premise is that a number of proposed systems will *not* do. Rather it tends to show that no system of rules will describe correct usage; that correct usage is ultimately disorderly; that it possesses no order of its own and therefore in part resists every attempt to order it.

When we put it in this way, we can see how we might begin to counter this argument. It does not follow from the fact that a number of proposed systems break down that there is no adequate system. In fact, we can see why many of the proposed systems fail.

In the first place, it is now generally recognised that unsatisfactory treatments of English grammar have resulted from the attempt to impose on English the forms of Latin grammar, or to find in English grammatical structures very similar to those of Latin. This attempt was at one time supported by the belief that Latin grammar exhibited in a particularly clear way the logical forms which, being necessary forms of thought, were also necessary forms of its expression and communication. So this treatment of English grammar was part of an attempt to state a universal grammar, justified in terms of logic but in fact deriving its content from Latin grammar. This attempt was paralleled by the roughly contemporary theory of Natural Law, which was similarly an attempt to state a universal system of law, justified in terms of reason but in fact deriving most of its content from Roman Law.

Secondly, a number of faults in systems of English grammar arise from the attempt to classify words rigidly as nouns, verbs, adjectives, etc. In many languages such a classification is correct, but it is one of the outstanding features of modern English that one word can function in a variety of ways. Almost every so-called noun can be "used as an adjective", as when we speak of "war criminals". Many adjectives are "used as" nouns—for example, "dark blue is my favourite colour". But the phrase "used as" is misleading, for a word does not necessarily move wholly into another grammatical class: it can retain some characteristics of one class and simultaneously take on some characteristics of another. In "war criminal trials" "criminal" as a noun is qualified by "war", but the noun phrase thus constituted functions as an adjective qualifying "trials". Similarly, in "a dark blue suit" "blue" has both nominal and adjectival functions. Yet these *functions* are still distinct, and would still have to be distinguished even if in the classification of *words* we were to replace the two classes, nouns and adjectives, with a single class that would include both.

With such a method of approach we may be able to solve such problems as that discussed on pp. 206-7 above.

In (b), "as" has some of the functions of a subordinating conjunction, and some of the functions of a pronoun. In its pronominal function it is the subject of "were taken", and it refers, though rather loosely, to "measures", and has (as its verb shows) the same number as "measures". Since the subjects of the two clauses refer to different things, it would be more accurate to describe "as" in this function not as a relative but perhaps as a comparative pronoun. As a conjunction, "as" introduces what functions in part as an adverbial clause modifying "such", and thus makes a comparison between two sets of measures.

In (c), "as" has a function closer to that of a pure relative pronoun, but it is still not simply a relative pronoun: (c) does not mean simply "the measures that were taken were ineffective" but also suggests that the measures were few or half-hearted; the clause "as were taken" has still some adverbial force, still modifies "such" in some way. It seems probable that usages like (c) are historically descended from usages like (b), helped perhaps by the analogy of such usages as "the measures taken, such as they were, were ineffective".

Similarly, usages like "cats, as is well known, are fond of fish" may be descended from usages like "cats, as Pliny relates, are fond of fish". Here too the subordinate clause retains some of its original adverbial function, so that "as" still retains some of the features of a conjunction, though it has also acquired some pronominal functions.

The rule suggested by this analysis is that "as" never functions simply as a relative pronoun, though it may combine a pronominal function with that of a conjunction introducing an adverbial clause. If our analysis is correct, this particular problem at any rate has been solved: we have not had to admit that there is an ultimate irregularity in the distinction between correct and incorrect usages. And while our procedure may bear a superficial resemblance to that described on page 205 as a process of inventing rules that will justify the correct usages and exclude the incorrect ones, I think that we have really been doing something rather different: we have been studying the actual characters of the various usages; we have been trying not to invent a rule but to discover an already existing regularity.

Although we have been dealing with these usages from a functional point of view, we have had to make some reference to a possible historical treatment. Now it is conceivable that the functional treatment might fail; for example, we might find a correct usage, rather like that of (c), where "as" was no longer functioning at all as a conjunction, but simply as a relative pronoun, while (d), where it also functions simply as a relative pronoun, was still incorrect. The distinction between the correct and incorrect usages could not then be made functionally: it would have to be made, if at all, historically: we should have to treat the correct usage as an idiom, and explain its correctness by showing that it had developed from some regular usage, perhaps in a way similar to that in which usages like (c) may have developed from usages like (b), by a gradual loss of the adverbial force of the subordinate clause. This is a point that we shall take up again below.

In this way we can, I think, meet the second (which is also the most formidable) argument for the view that grammar rules are arbitrary constructions. Our analysis will also enable us to see how the appearance of arbitrariness arises. When a word or phrase or clause combines a number of functions in the way described, the conventional grammatical treatment compels us to seize upon one of these functions, and give a grammatical analysis in terms of it alone, importing "words understood" in order to make the usage conform to what is normal when the function chosen is the only one present. In (b), for example, we might try to treat "as" simply as a conjunction, saying that the sentence in full would run "such measures as those which were taken then will always be ineffective". Equally, we might in (a) try to treat "as" as a relative pronoun, saying that the sentence in full would run "he spoke such words as he intended to speak". Now if we have to choose to describe only one function when in fact two are present, our choice is arbitrary.

But also, whichever we choose, our account is wrong, since it is incomplete. The apparent arbitrariness, then, arises from the use of a false method, from aiming at too simple an account. Of course, it is possible that the supplying of "words understood" may correctly indicate how our usage has developed historically by a process of condensation, but we should not offer a piece of possible history—or even, after checking it, a piece of actual history—as a description of the present usage.

It seems, then, that we can meet all the arguments advanced earlier in favour of the view that a rule of grammar is an arbitrary construction. But the discussion of this question has brought out a slightly different issue: how orderly, or how disorderly, is the material described by grammar? In other words, what proportion of correct usage is made up of idioms? It is not possible to discuss this question with regard to English syntax until we have worked out in detail a correct description of that syntax. We can, however, examine the position with regard to morphology or accidence in various languages. Now while there are quite definite particular facts of accidence—for example, that the plural of "horse" is "horses" and that the dative singular of *annus* is *anno*—most of the general rules of accidence which we try to state are found to have exceptions. In most of the Latin declensions and conjugations there are a few words with some "irregular" forms. In English, there are exceptions to the rule that to get the plural of any noun you add "s" to the singular. Even when provision is made for special classes, like words ending with a consonant followed by "y" which change the "y" to "ie" before the "s" of the plural, there are still a few obstinately individual exceptions, such as "foot". In other words, the rule takes the form "except for A, B, and C, all X are Y". Moreover, we shall not in general be able to find a single differentia, or even set of differentiae, to mark off the exceptions A, B, and C, so long as we confine ourselves to describing the contemporary language. There are reasons why the plural of "foot" is "feet", but they are to be found not in modern English but in Old English, and in the history of the change from one to the other; they will lie in the fact that the Old English ancestor of "foot", like many other Old English words, had a strong plural, and in the fact that for some reason this word retained its strong plural when most others were assimilated to the prevailing weak plural form. In other words, rules of accidence, such as are embodied in conjugations and declensions, have the untidy form indicated above.

We should not be surprised then, if rules of syntax have a similar form, if there are a number of idioms, of particular correct usages which violate any simply-formulated rules. This is to be expected because forms of syntax and forms of accidence develop by the same historical processes, for example, by analogical extension. If the usage "that's him" becomes established as correct—and some linguists maintain that it is already so established—then this will be an obstinate individual exception to the rule that the predicate of the verb "to be" is in the nominative case. And we shall have to explain this idiom historically, showing how it has been influenced by the analogy of sentences containing a transitive verb.

There is perhaps one reason why this should not be so, why there might be more regularity in syntax than in accidence. If there are truths of logic, if the things described in language have certain constant logical forms and logical relations, then it might be argued that syntax, which has to represent these forms and relations, must contain at least some simple and absolutely general rules. At least that part of syntax which belongs to a universal grammar based on logic will be absolutely regular.

I think, however, that this argument is invalid. The same logical form or logical relation can be represented by a variety of syntactical forms: the regularity of logic, then, still leaves syntax free to vary as directed by the complex forces of linguistic history. For example, if the two expressions, "Chastity is unknown in Lappland" and "What? A Lapplander chaste? Not likely!" have the same logical form, which is most accurately represented by "No Lapplanders are chaste", it is surely fanciful to expect that logic can impose any regularity on syntax.

We must expect to find, then, in syntax as well as in accidence, that some of the rules will be of the untidy form mentioned above, "except for A, B, and C, all X are Y". But this does not mean that the rules of grammar are arbitrary constructions, nor, as de Saussure suggests, that they are not true but merely useful. These comments would apply only to incorrect statements of the rules, to the "rule" "all X are Y". When stated in their correct but untidy form they are true, and, moreover, they are truths without which the further scientific study of language, including the historical study, would be unable to proceed. It is to be noted that the same untidiness will be found in any science that describes a single temporal phase of any class of changing things—for example, in botany in so far as it describes and classifies contemporary flora.

A practical issue of some interest may be mentioned here. H. K. Hunt, in his recent book *Training Through Latin,* has argued that one of the merits of Latin is that it provides a field for the learning of scientific method. The pupils can be offered a number of examples of correct usage and can then formulate and test hypotheses as to the rule of syntax or accidence involved. Now this suggestion may be criticised on the ground that the grammatical rules, in the form stated, will be found to have exceptions, and yet may be left as rules in the grammar book. In other words, it may be argued that the grammar of Latin, or of any other language, is so untidy that it is a thoroughly unsuitable field for the initial practice of scientific method. I am not sure how Hunt would reply to this criticism, but one possible reply would be that the complexities with which one is forced to grapple in a grammatical study make it an excellent introduction to the method of the social sciences.

This point may be supported by a glance back over the ground we have covered. As we saw in the first part of the discussion, the apparently normative character of grammar is connected with the presence of a variety of competing usages. Moreover the incorrect usages are not just mistakes, they are not merely random deviations, but have causes and perhaps a long history of their own. Of the incorrect usages that occur, some, like "ain't", may be old forms that have survived in slang or dialect, though rejected from literary usage. Others, like "this is the book as I bought", may be formed analogically, as a result of some resemblance to correct forms. A good example is "adaption", formed by analogy with "adoption". Now this analogical formation is an important process in the history of languages, and has brought into existence many forms that are now correct. For example, "cows" instead of "kine" was introduced in or about the sixteenth century by analogy with such plurals as "sows".(12) Similarly the apparent arbitrariness and the real untidiness of grammar rules discussed in the second part of this article are associated with changes in usage, with the fact that a word takes on a new function without losing its old one, that a word enters into a new construction gradually, and at first only in special circumstances. And many of the untidy rules of accidence, the "regular" declensions with a few outstanding exceptions, have come into existence through a process of analogical change that has here and there been checked by special conditions.

In fact, the difficulties that led to the posing of our three main questions all arise from the fact that a language is a complex and changing thing. An interesting point made by Bloomfield(13) is that this complexity cannot be overcome: we cannot divide up a language into a number of pure or uniform dialects, since however small a geographical area or social stratum is chosen, there are competing usages within it.

References.

(1) F. de Saussure, *Cours de Linguistique Générale*, p. 13 (my translation).

(2) See, for example, H. Sweet, *New English Grammar*, pp. 1-6.

(3) See, for example, O. Jespersen, *The Philosophy of Grammar*, Chapters II-III.

(4) Leonard Bloomfield, *Language*, p. 7.

(5) Ibid., p. 11.

(6) This Journal, Vol. XXI, No. 1, *The Meaning of Good*, esp. at p. 40.

(7) See the *Concise Oxford Dictionary*, under *farther*.

(8) Fowler, *Modern English Usage*, p. 558.

(9) Op. cit., p. 7.

(10) This Journal, Vol. XXVI, No. 1, *The Nature of Analytical Jurisprudence*, pp. 28-9.

(11) Op. cit., p. 37.

(12) Bloomfield, op. cit., pp. 404-6.

(13) Ibid., pp. 322-3.

REVIEWS.

THE EMOTIONS: OUTLINE OF A THEORY, $2.75.
THE PSYCHOLOGY OF THE IMAGINATION, $3.75. Both volumes by J. P. Sartre, and published by the Philosophical Library, New York.

The first volume opens with a general criticism of contemporary psychological methodologies, from a point of view which is a not very clear combination of Husserl, Heidegger and Sartre. It is more phenomenologist than existentialist, and is directed against those who are concerned with the collection of "facts" as a scientific procedure. Taking literally, it seems, Husserl's statement in the *Ideen* that Phenomenology has to do with essences and "absolutely no facts", and overlooking to some extent Husserl's distinction between the eidetic reduction that leads from psychical phenomenon to pure essence and the transcendental reduction that purifies the phenomenon from that which lends it reality, Sartre attacks psychology in general, with the result that little repercussion will be felt by any school of psychology. He takes all schools of psychology, accurately, to be non-phenomenological in his sense of a science based upon transcendental anthropology—an essence of man, Human Reality—which is to be seized directly by a self-consciousness which must have seized it and yet which, awkwardly enough, cannot reveal it either to itself or to other consciousnesses.

On his assumption that facts are atomic and completely distinct, Sartre's criticism of a fact-psychology is effective. Unfortunately it is difficult to find any school which has such a view of facts, even if a *somewhat* similar accusation could be made against several schools. Part at least of Sartre's objection could be stated in the form that listing of external behaviours will never reveal what the organism in fact is. The fairly clear and succinct argument that only on a basis of the fixing of the essence of man, of man's essential Being, can psychology be grounded and intelligible, and an argument based upon Cartesian assumptions that essences must be known somehow before "facts" or occurrences can be distinguished and classified, will prove generally unintelligible or insignificant to psychologists, especially when the introductory attack concludes with the statement that phenomenology is still in its infancy, the essential Reality is not yet determined, and that Sartre is not, in this volume, going to attempt its determination. The problem Husserl expounded with such difficulty of the relation between phenomenology and phenomenological psychology is simplified, and becomes nugatory.

The book proper has criticisms of the "Classical Theories", which Sartre takes to be those of James, Janet, Wallon, Guillaume and Dembo, with mention of Lewin and Köhler. These criticisms are pointed, and lead to the conclusion that the solution to the general problem of emotion lies in recognising the importance of its functional role. It is claimed that the passage from state of mind to state of mind which is described by the "psychologists of form" is a transformation which can only be effected by consciousness, since consciousness alone can, "by its synthetic activity, break and reconstitute forms endlessly". Emotion, it is argued, is "a consciousness" which plays an important part in the changing of states of mind. Psycho-analytic theory receives a separate chapter, being commended for its insistence upon the significance of psychic facts, but decried as placing that which is symbolised behind the symbol, and thus behind "consciousness". Consciousness becomes the Absolute, self-constituted and thus entirely self-aware. "There is an immanent bond of *comprehension* between the symbolisation and the symbol". . . "it is consciousness which makes itself consciousness, being moved to do so by an inner signification."

The remaining 44 pages consist of acute considerations of emotional states, of extreme subtlety and interest. The very occasional use of esoteric terms (hyle, noematical, abschattungen, hodological) from various sources will appear unnecessarily troublesome, some terms (positional consciousness, non-thetic consciousness) perhaps sheerly obscure. The central argument, however, is easy enough to follow: that emotional states are conditions of the whole human organism in relation to an environment, that each is intentional in the sense of being motivated, and that any transformation from one to the other is likewise motivated. The analysis of specific motives will appear convincing even to those who regard simply as facts or falsities such propositions as (*a*) that some states of fear are motivated attempts to deny the threatening aspect of a real entity by eliminating the entity from consciousness, or (*b*) that all emotional states are attempts to treat the world magically and make it as desired. The insistence upon studying particular situations seems strangely out of accord with his earlier attack upon mere facts.

What emerges definitely is the manner in which Sartre is compelled to treat consciousness—and likewise the transcendental ego, which floats tremulously in and through an empirical and emotional ego—as having precisely those qualities which are usually held to belong to emotion and conation in the older theories. Admitting Descartes' wide definition of the Cogitatio as including understanding, willing, imagining and perceiving, it is forcing the transcendental ego far to make it self-consciously identical with these. Sartre recognises this except when he is making a summary statement. When it becomes necessary to analyse the actual features of an emotional cognition, we are provided with both a consciousness of X (which posits X as *there*) and a non-thetic consciousness of self which amounts to no more than a knowing without knowing, a consciousness which *must be* aware of itself and yet *is not.* Sartre is unable to recognise a reflective act of consciousness as distinct from the act reflected upon, unable to get away from the assumption that all conscious acts are self-conscious. In spite of this, the whole tendency of his exposition is to demonstrate the "finality" of the emotion. The state of tension which is characterised by desiring as much as by knowing is so motivated that the motivation determines the quality as well as the intensity of the awareness, whether the world is to be seen as sad, terrible, happy or just as a perspectived *Umwelt* of perceived "infinite gradations".

His Cartesian presuppositions cause these emotional features to be transferred to consciousness, in accordance with the view that mind and consciousness are one. Sartre is sincere enough, and closely enough concerned with occurrences, to come very near to recognising consciousness as a specific and far from all-important activity of mind, a view that would make his statement of consciousness as the "behaviour of behaviour" almost intelligible. On such a view, when he "interrogates consciousness" about the nature of man—his methodological basis—he might reasonably expect an answer, consciousness then being clearly a potential signification, an indication of a specific emotional state which is the existential mental agent conscious of the object.

In the second of these volumes the problem is "to describe the great function of consciousness to create a world of unrealities, or 'imagination' and its noetic correlative, the imaginary". (One might expect noematic rather than noetic here.) The Cartesian "absolute certainty is given by a reflective consciousness" is asserted; the phenomenological distinction between *description* of an image and *drawing conclusions* regarding its nature is outlined; and by way of illustrating the simple method of producing images, reflecting upon them, and describing them, we are given, rather remarkably, a criticism of Hume. Hume's "ideas" are, correctly enough, argued to be images, and Sartre establishes as simple error the "illusion of immanence"—the taking of objects of imagination to constitute a world of objects within the mind which are entirely like those of the external world, but which simply obey different laws.

Imagination is, over easily, established as a consciousness, a complete consciousness with complex structures, which *intends* certain objects. The characteristics of (*a*) positing its object as nothingness, and (*b*) spontaneity, complete the essential outline of the imagination, and it is then possible to discuss at length the various members of the "image family", the role of knowledge, words and things in the mental image, and finally the image in mental life and the imaginary life proper.

As with the first book, the material is carefully selected, presented and considered. Both philosopher and psychologist will find Sartre's analyses provocative and informative. A Cartesian who is willing to bring his theory of mind down to the level of actual psychic occurrences and at least enable it to be called into question at the level of facts must always be of interest. His method of establishing that the object of the imagination is the same object as that of perception, that imagination is imaginative consciousness of an external object, is careful and asserts a significant epistemological thesis. Unfortunately the later sections are obscured by a language, either metaphorical or confused, which speaks of the "world of images" rather as if the first principle had not been established. The imaginative consciousness, the emotional consciousness, the perceptual consciousness, and any other type of consciousness, tend to be treated as constituting worlds of special types in a way that obscures quite impressive arguments.

The phenomenological technique is illustrated in a more detailed fashion here. The final section is an attempt "to fix by concepts the result of the eidetic intuition of the essence consciousness", which is one of the few available examples of a practical committal to essence-fixing and illustrates at least the sort of end that may be envisaged to an eidetic reduction. I think it should not be assumed, however, that Sartre's "fixed essence" would be acceptable to phenomenologists proper.

It is impossible to present the conclusions in brief. They can be indicated only, but they are useful in throwing light on certain of the language of the French existentialist movement. The imaginative act is at once constitutive, isolating and annihilating. The imaginary object can be posited as non-existent, as absent, as existing elsewhere, or not posited as existing. These four theses include the entire category of negation, though at different degrees. Imagination—or consciousness—can be such only on a basis of positing the world as a world, and a negation of it which is one and the same thing, so that nothingness is the constitutive structure of the existent. All imaginative consciousness uses the world as the negated foundation of the imaginary and reciprocally all consciousness of the world calls and motivates an imaginative consciousness as grasped from the particular meaning of the situation.

The metaphysical problems implied have much in common with the methodological (and logical) presuppositions discussed in the first book. It is evident here that, as must be the case for thought or communication to be possible, occurrences are the field of investigation, that statements are about occurrences—or about facts. Whether or not all imaginary consciousnesses use the world as the negated foundation of the imaginary is a matter of fact, simply a true statement or a false, and can be treated only as such unless we are to reject logic and reason to make imagining as much a scientific procedure as reasoning—a procedure which most would reject, and Husserl most vigorously. Special terminologies tend always to obscure the facts, to erect upon a description of occurrences an artifact edifice that is mere verbalism. If we make consciousness the absolute, and proceed to negate it by qualifying it as imaginative, emotional, perceptual, the limited idealism must regard the real as dependent, as its own, as an inferior part of its own over which it has not the same sweeping control as is the case with other "elements". If the statement that "consciousness is imaginative and perceptual" is reduced to a theory of worlds of imagination and worlds of perception, then those worlds are composed of images and percepts, and Sartre is bound to them in spite of his rejection of the "illusion of immanence". *That* illusion is negated by a negation of the independent objective world, reference to which is not only irrelevant but impossible. Moreover, the subjective insistence, the limiting of consciousness to a personal consciousness, denies the way out of the difficulty seized by the great idealists, the balancing of Consciousness against Reality and thus the leaving of Reality to be what Consciousness can be constituted of in the Absolute.

Metaphysically, Sartre seems to have become imbued with a flagrant form of the psychologism against which Husserl strove in his middle period. The fundamental weakness, in phenomenological terms, is a failure to examine actual "states of consciousness" for what they are, to distinguish at all points the positional-consciousness of objects and the reflective consciousness. So, in a most interesting section on imagination in psychosis, Sartre makes nothing of the distinction between the intentional act which "intends" an image, grasps it as present because of a desire for the object, and a reflective act, however vague, which denies the actual presence of the object. The feature of the dream is precisely the acceptance of the dream personages (the images) as real, as immediately present, with later denial—in the dream sometimes, after the dream almost always—of this actuality. Sartre can present situations brilliantly, and discuss them as factual; but an over-riding theory of consciousness, as at any time unitary and self-transparent, rejects what I would term descriptive features of the situations. The blinding effect of the principle can be seen in a dismissal of the Unconscious of Freud in a two-line footnote observation on a point in the text. Psycho-analysis is an excellent example of a theory expressed in terms of an idealism which must be rejected, yet which cannot be so rejected itself because it is radically different from that idealism.

What Sartre has to contribute, to epistemology as well as to psychology, does not depend upon the Cartesian cogito at all, but is in spite of it. His insistence upon "intentionality" in a way that emphasizes motivation (he suggests the capacity of feelings to find objects, of general desires to determine conscious states as specifically emotional, imaginative or perceptual) is some distance from the "intentionality" of Husserl; but it does enable him to get beyond the transcendental ego, the pure subject of cognition, towards a description of mental states—and towards an account of mind—in a manner impossible, I think, to a fully consistent Cartesian or an idealist-empiricist.

A. M. RITCHIE.

THE STORY OF THE R.P.A., 1899-1949, by A. Gowans Whyte. Watts and Co., London, 1949. Price: 5s. Pp. 105.

ONE might hope to find in this volume a history of controversy and polemic. But in fact it is a work of piety, in which the founders of the Rationalist Press Association are respectfully remembered, and the publishing triumphs of the Press are statistically set forth. There are occasional references to more interesting topics—for example, the booksellers' boycott of R.P.A. publications—but these are never discussed in detail. On the whole, the R.P.A. emerges as an eminently worthy and thoroughly respectable British institution.

J. A. PASSMORE.

THE FAMILY IN THE U.S.S.R., DOCUMENTS AND READINGS, edited with an introduction by R. F. Schlesinger, International Library of Sociology and Social Reconstruction, Routledge and Kegan Paul, Ltd., London. Pp. 406. Price 25s.

THIS is, for the most part, a collection of documents—official decrees, statements by "theorists", newspaper editorials, extracts from correspondence columns and (perhaps the most interesting of them all) a detailed report of a parliamentary discussion in the N.E.P. period. Not only the specialist on Russian affairs, but also anyone who is interested in the social vicissitudes of moral outlooks will find these documents extremely useful. Those which bear on the battle over the registration of *de facto* marriages, in particular, bring out very clearly the way in which peasant-morality has gradually come to prevail in Russia. The atmosphere of the later documents is one of extreme respectability;

they remind one only too sharply of a parish paper. "All the delegates rise. Comrade Vesnik presents Comrade Stalin with an album, with a piece of tapestry embroidered by herself and a shirt embroidered by the activist-wives; Comrade Ordzhonikidze is presented with a shirt and an album; Comrade Krupskaya receives an embroidered cushion. There is wild and prolonged applause." (*Report of the Conference of Wives of Engineers in Heavy Industry*, p. 245.)

A collection of documents has about it an air of impartiality which is, of course, completely misleading. Schlesinger assures us, for example, that the "Western Liberal" views about marital relationships which he quotes from the works of A. M. Kollontay were never widely held by members of the Communist Party; no document, by itself, could establish this fact, so that, precisely on the most crucial points, we are compelled to rely on Schlesinger's *obiter dicta*. He does not conceal his general sympathy with Russian policy—words like "Trotskyist" come easily to his pen—although he is obviously perturbed about some of the more recent developments, especially the new divorce laws and the abolition of coeducation. But even if the emphasis of the volume may sometimes be misleading, it is a useful ancillary to any study of social institutions.

J. A. PASSMORE.

TOWARDS A SOCIALIST AUSTRALIA. (The N.S.W. Fabian Society, 1949. 32 pp.) Price 1s.

THIS, the second pamphlet produced by the Research Group of the N.S.W. Fabian Society, is concerned mainly with a restatement of the well-known economic arguments for socialism. In this field it offers nothing new: it does, however, emphasize "the general welfare" and "community objectives" as the end of planning and as the criterion of efficiency. The authors are either unaware of, or have chosen to ignore, the criticism that in a society where real interests are in constant conflict there is no general welfare, and that this phrase is therefore a mere slogan which represents and conceals one particular interest.

It is not surprising, then, that the pamphlet is weakest on the political side. The authors speak of "conversion . . . by education and discussion", of the community *wishing* socialisation to be carried out differently, and of "public opinion" as the main safeguard of democracy. They fail, that is, to recognise the actual political processes, and substitute for them the account given in the current ideology of democracy.

Similarly, in replying to the argument that economic power may preserve liberty by providing a counterweight to state power, the authors evade the issue by merely insisting on the anti-equalitarian and anti-democratic character of economic power itself. And they cannot propose the trade unions as an alternative source of power to rival and limit that of the state, since they have assigned to the trade unions the very different function of reconciling their members to the economic policies of the state.

The basic error in this pamphlet, then, is the ignoring of political causation. This appears again in the discussion of international relations, where the authors rely on "the whole psychological outlook of democratic socialist states" to reduce the risk of war, and in the general failure (despite the title) to relate the socialist programme to actual Australian conditions. The discussion as a whole is on the "wouldn't it be nice" level, and even at the end, when some suggestions for a practical policy are made, little account is taken of the actual situation of the Australian Labour Party.

If this pamphlet, then, is not scientific, but ideological, the question to be asked is, "whose ideology?" It seems significant that the authors reject not only capitalism but also political control and workers' control of industry, on the ground that both politicians and workers may have personal or sectional interests to promote. Enterprise is to be organised through public corporations, and presumably the substance of power will belong to the executives who manage them and the economists who "advise" on the plan. It seems to be assumed that, unlike capitalists, politicians, and workers, these experts have no particular interests and aim only at the general welfare—which may lead us to suspect that "the general welfare" is another name for their particular interests.

Towards the end of the pamphlet the moral tone is raised by a brief discussion of "socialism and the good life". However, there is a curious lack of harmony between this and the rest of the pamphlet. Here, for example, it is said that the main argument for socialism is that it provides "a minimum amount of economic security and reasonable leisure" as a basis for the good life. But elsewhere it was argued (against revolutionary socialism) that capitalism in Australia will not allow the conditions necessary for revolution, namely, "intolerable suffering and oppression", to occur. Perhaps, then, even capitalism may at times provide the "minimum" for the good life. Again, it is said that the most serious objection to capitalism is that it puts a premium on selfishness and greed, but elsewhere it was argued that even socialism must make extensive use of incentive payments.

JOHN MACKIE.

METHODS OF PSYCHOLOGY. Edited by T. G. Andrews. John Wiley and Sons Inc., New York, 1948. Pp. 716 and xiv.

According to this editor there is need for greater emphasis on methodology in the training of students in psychology, because any interpretation of data must include the method as a term of reference. Therefore he aims to present an account of the essential and representative methods of modern psychology. The chapters are arranged according to the processes under investigation and each is contributed by an acknowledged expert. The book has been written as a textbook on methodology for students who have just completed an introductory course in psychology. In an attempt to feature methodology the contributing authors agreed to avoid historical and theoretical controversies and to allot a minor role to mere data. They recognized the editor's claim that "methods are always to be understood in their relations to the problems of psychology" by presenting methods in terms of problems or problems in terms of methods. The topics of statistics and industrial psychology have been omitted on the grounds that the former is better dealt with in a separate text and the latter borrows methods from other fields of psychology.

An examination of some specific chapters mostly shows that the above aims are not fulfilled. A promising beginning is made in Chapter 1 ("An Introduction to Psychological Methodology", by T. G. Andrews). The editor describes the background and general plan of scientific method and offers a classification of methods in psychology; he indicates the criteria of an experiment, distinguishes between functional and factorial experiments, and compares experimental and differential methods. One expects to find detailed application of these points in later chapters. Chapter 2 ("Conditioning and Motor Learning", by W. N. Kellogg) includes a list of some ways in which blind alleys are eliminated in maze learning and offers explanatory theories such as the goal gradient hypothesis; their relation to methodology, however, is left obscure. A large section of Chapter 5 ("Psychophysical Methods", by L. L. Thurstone) is devoted to applications of the psychophysical methods, but it is only an account of methods and problems and has no explicit references to methodology. Chapter 6 ("Studying Perceptual Phenomena", by James J. Gibson) wastes space in a description of Sherif's experiment on social perception, for the experiment uses no new method. Chapter 7 ("Studying Vision", by S. Howard Bartley) is merely an account of topics of study in this field, e.g., adaptation, and the only useful references to methodology are made in the "Methodological Summary" at the very end of the chapter. Similar statements may be made about the other chapters, sample headings being "Motivation, Feeling, and Emotion" (Chapter 13, by P. T. Young), "Studying Motor Functions and Efficiency" (Chapter 16, by A. G. Bills), "Investigating and Appraising Personality" (Chapter 18, by S. Rosenzweig), "Objective Studies of Disordered Persons" (Chapter 20, by J. Zubin) and "Studying Social

Behaviour" (Chapter 22, by T. M. Newcomb). They all offer lists of techniques rather than systematic treatments of methods.

Thus *Methods of Psychology* fails in its function as a *text-book for undergraduates.* A reader seeking an account of the application of scientific methods in the field of psychology is enticed by the title of the book and by the editor's preface and first chapter, but is thereafter disappointed to find, instead, a list of technical problems intermingled haphazardly with results and theories. The very layout of the book is unexpected in one which aims to treat methodology, for the topics are too specific. In short, the book will confuse an undergraduate beginning a course in methodology. On the other hand, the book has undoubted value as a *reference book for the advanced student or graduate* engaged in research in the laboratory or in the field.

R. A. CHAMPION.

AROUND THE JOURNALS.

LOGIC: The status of necessary propositions is discussed by A. Pap (*Phil. Rev.*, 346), who defends the view that they can be synthetic, as does S. Toulmin (*Mind*, 230); Paul Edwards (*Jnl. of Phil.*, 46, 15) denies that they tell us anything about the world but also that they tell us nothing. In *Mind* (230) he argues that Russell's doubts about induction derive from his first offering a "high definition" of "having a reason for" and then complaining that in this sense of "reason", induction doesn't give us reasons. E. Beardsley (*Jnl. of Phil.*, 46, 18) continues the discussion of "counter-factual sentences", and M. H. Thomson (*ibid.*, 46, 17) examines Peirce's analysis of the logical paradoxes. W. Sellars on *The Logic of Complex Particulars* discusses familiar puzzles about things and qualities in a somewhat forbidding-looking technical language (*Mind*, 231). In *Analysis* (9) W. B. Gallie argues, with special reference to "mental verbs", that analysis cannot cope with expressions of such a kind that we do not know what conditions are sufficient for their use; A. N. Prior that *a fortiori* arguments can be expressed syllogistically and that we can thus dispose of the notion that there is a mysterious intuitively apprehended property, *transitivity*; J. F. Thomson that truth cannot be defined except in semantic terms, and that if such definitions leave philosophers dissatisfied this is because they are really interested, not in truth, but in *understanding*, whereas P. J. Strawson (*ibid.*, 12) maintains that the phrase "is true" has no descriptive function whatsoever.

METAPHYSICS: *Revista di Filosofia neo-scholastica* (41, 1) is a series of essays on the nature of metaphysics; *The Philosophical Review* (343) contains a discussion on the relation between logic and metaphysics with contributions by Nelson, Ambrose, Hall and Nagel; W. T. Stace (*Philosophy*, 90) gives reasons for rejecting the view that out of nothing, nothing can come; there is an elaborate bibliography of existentialism in *The Modern Schoolman* (26, 4).

SCHOLARSHIP: D. D. Raphael considers Butler's theory of conscience in relation to the views of his contemporaries (*Philosophy*, 90); O. K. Bouwsma examines the operations of Descartes' evil genius (*Phil. Rev.*, 344); in the *Annali Della Scuola Normale Superiore di Pisa* (17, 3-4) M. Scorsi discusses in detail Croce's "pensiero giovanile"; R. P. Anschutz (*Mind*, 231) draws attention to certain inconsistencies in Mill's logic and relates them to Mill's simultaneous admiration for Bentham and for Coleridge; B. M. Kedrov studies the genesis of Dalton's atomic theory (*Phil. and Phenom. Research*, 9, 4); B. Mates describes "Diodorean implication" (*Phil. Rev.*, 345).

VARIOUS: G. R. Mure defends 'the organic state" (*Philosophy*, 90); Russell's *Human Knowledge* is reviewed by L. J. Russell (*ibid.*, 90) and by W. Kneale (*Mind*, 231); M. Horkheimer emphasises the philosophical character of psycho-analysis and expresses the fear that it may degenerate into a technique of adjustment (*International Jnl. of Psycho-Analysis*, 19, 2). There is a new journal *Methodos* devoted to methodology and symbolic logic, with papers in their original language and in an English translation, published at the Casa Editrice La Fiaccola, Via Bagutta 18, Milan. Subscription, 16s.

BOOKS RECEIVED.

(Mention in this list neither precludes nor guarantees later review.)

THE MENTAL AND PHYSICAL EFFECTS OF PAIN. By V. C. Medvei. (Livingstone, 1949. 59 pp.)

ETHICS FOR UNBELIEVERS. By Amber Blanco White. (Kegan Paul, 1949. vi + 222 pp.) Price (U.K.), 12s. 6d.

An attempt to examine the problems of morality in the light of modern science and philosophy, without any appeal to revelation.

CHRONIC INVALID. By Phyllis A. Baxter. (Longmans, 1949. vi + 117 pp.) Price (Aust.), 10s.

THE INSTITUTIONS OF PRIVATE LAW AND THEIR SOCIAL FUNCTIONS. By Karl Renner. (Kegan Paul, 1949. viii + 307 pp.) Price (U.K.), 25s.

A study of the sociology of law, of the impact of economic forces and social changes on the functioning of legal institutions.

WHAT IS PSYCHO-ANALYSIS? By Ernest Jones. (Allen and Unwin, 1949. 126 pp.) Price (U.K.), 7s. 6d.

An introductory account of psycho-analytic theory and its applications in various fields.

THE TIBETAN BOOK OF THE DEAD. By W. Y. Evans-Wentz. (Geoffrey Cumberlege, Oxford University Press, 1949. 1 + 248 pp.) Price (U.K.), 18s. (Second Edition).

COMPARATIVE EDUCATION. By Nicholas Hans. (Kegan Paul, 1949. x + 333 pp.) Price (U.K.), 21s.

An historical survey, which traces the effects of various "natural", religious, and secular factors, is followed by a comparison of the educational systems of England, the U.S.A., France, and the U.S.S.R.

PRACTICAL ETHICS. By Mary Sturt and Margaret Hobling. (Kegan Paul, 1949. 369 pp.) Price (U.K.) 18s.

A study of the problem of how to "educate" children in "virtue", based on an examination of the psychological and social foundations of moral behaviour.

SEX IN SOCIAL LIFE. Edited by Sybil Neville-Rolfe. (Allen and Unwin, 1949. 506 pp.) Price 21s.

This book, written by a number of contributors, is in two parts. The first part presents an outline of current scientific knowledge of sexual behaviour, while the second (and longer) part deals with the application of this knowledge to various aspects of life.

THE ESSENTIALS OF INDIAN PHILOSOPHY. By M. Hiriyanna. (Allen and Unwin, 1949. 216 pp.) Price (U.K.) 12s. 6d.

MODERN DISCOVERIES IN MEDICAL PSYCHOLOGY. By Clifford Allen. (Macmillan, 1949. xi + 236 pp.) Price (U.K.), 12s. 6d. Second edition, expanded and brought up to date.

THE LIFE OF REASON: Hobbes, Locke and Bolingbroke. By D. G. James. (Longmans, 1949. 270 pp.) Price (Aust.), 28s.

NOTES AND NEWS

NEWPORT CONFERENCE, JANUARY–FEBRUARY, 1950.

A residential conference will be held at the W.E.A. Summer School, Newport, N.S.W., from January 30 to February 6, 1950. The subjects discussed will be: (*a*) Attitudes, (*b*) Logical Positivism. Accommodation is limited, and those members who desire to attend should notify Mr. T. A. Rose, Department of Philosophy, University of Sydney, as soon as possible. The tariff will be £3 10s. for the week, or 11s. per day.